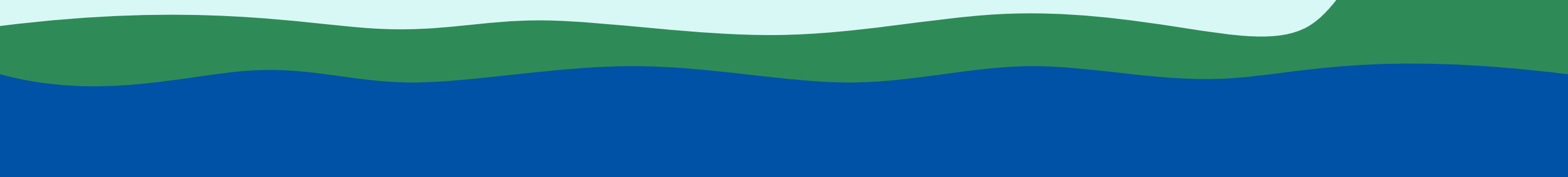
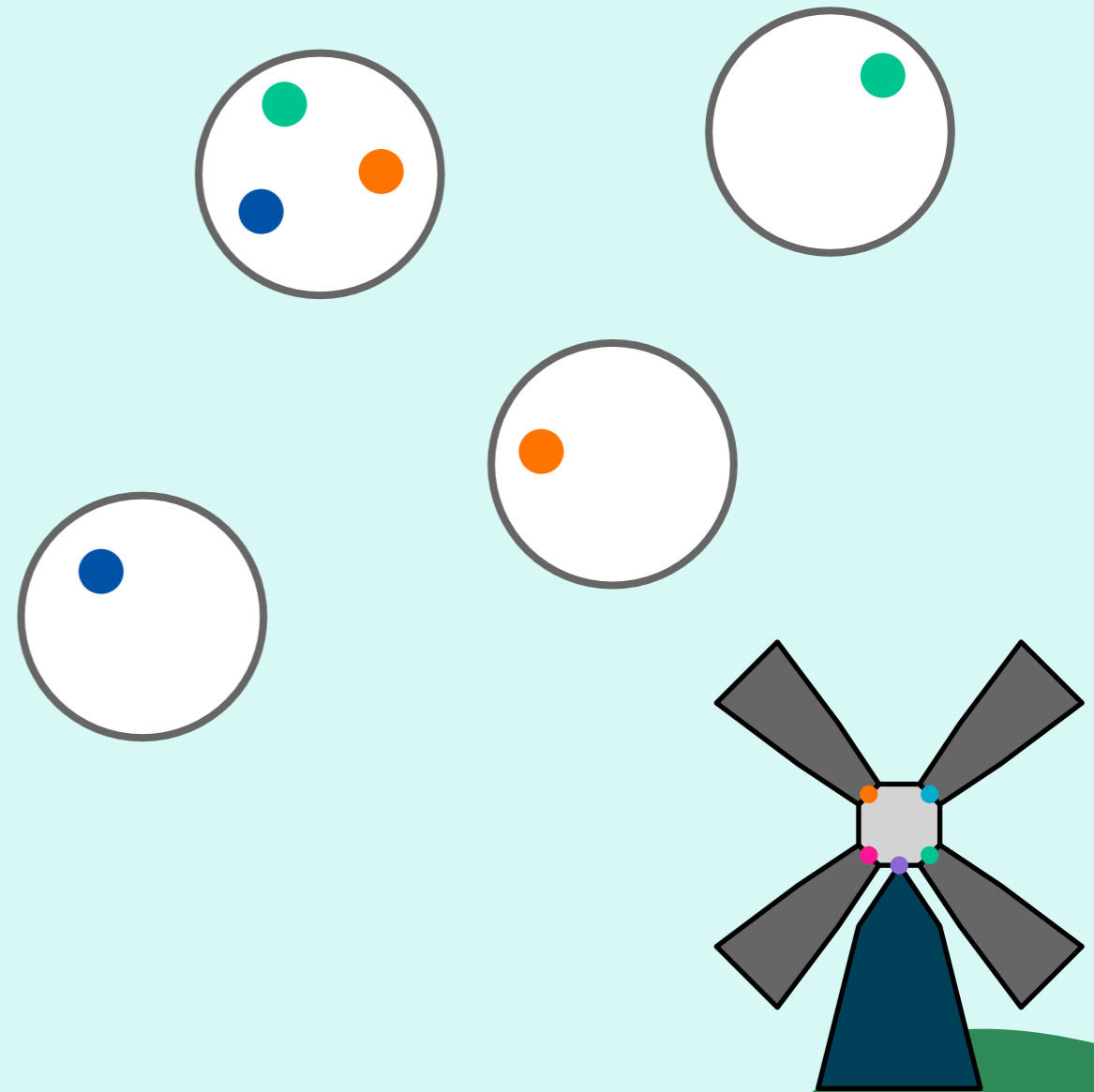
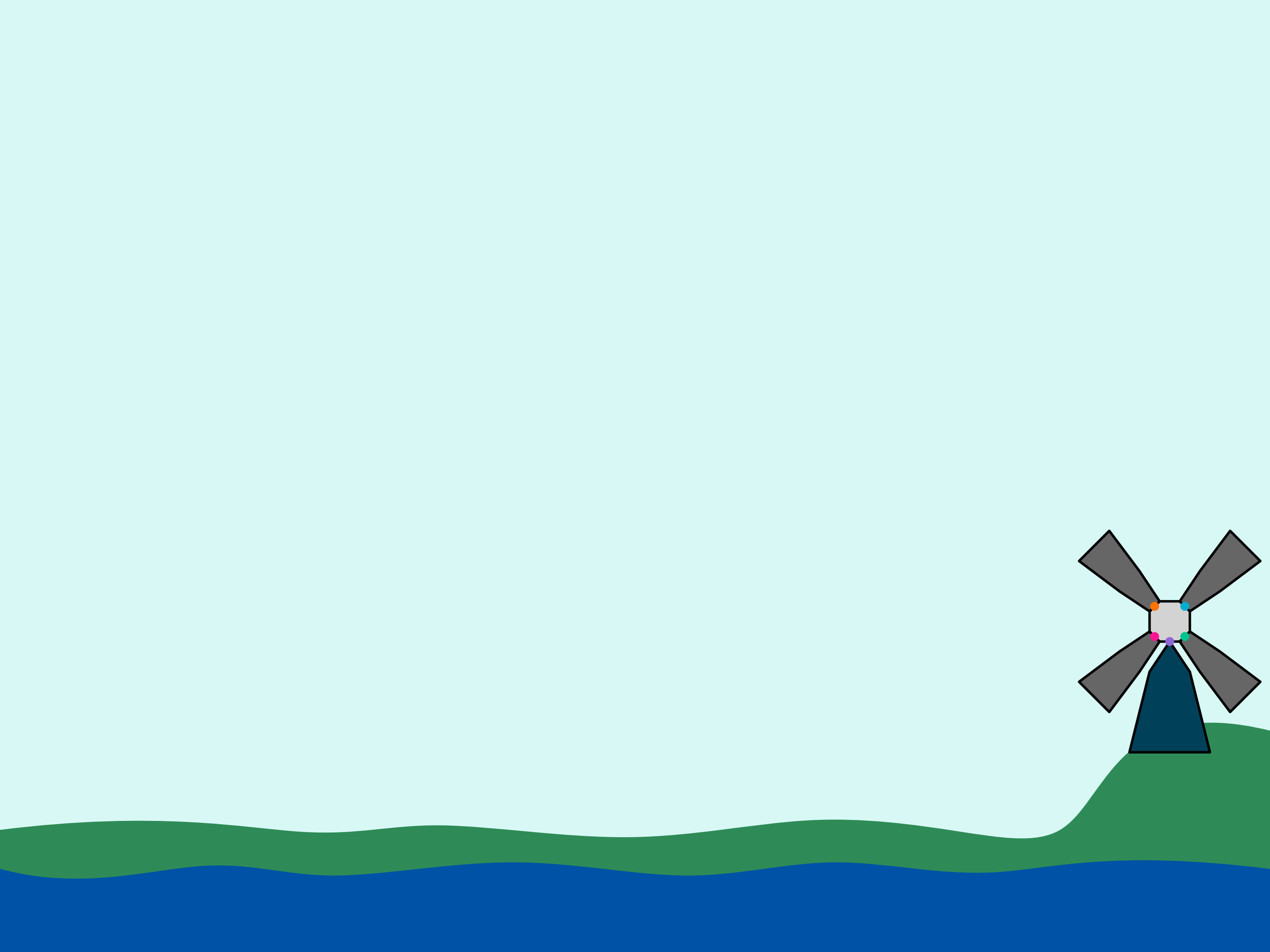
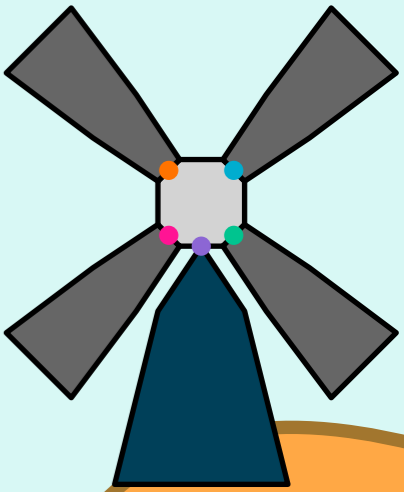


Realization of Simply Connected Polygonal Linkages and Recognition of Unit Disk Contact Trees

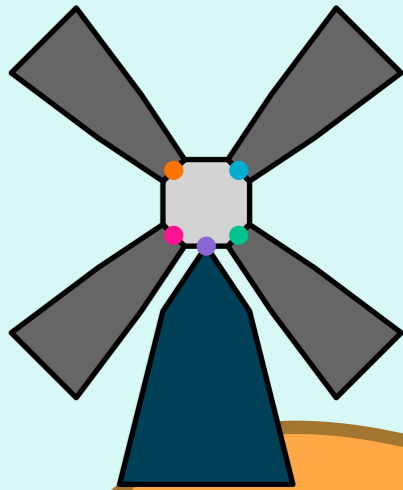
Clinton Bowen
Stephane Durocher
Maarten Löffler
Anika Rounds
André Schulz
Csaba Tóth

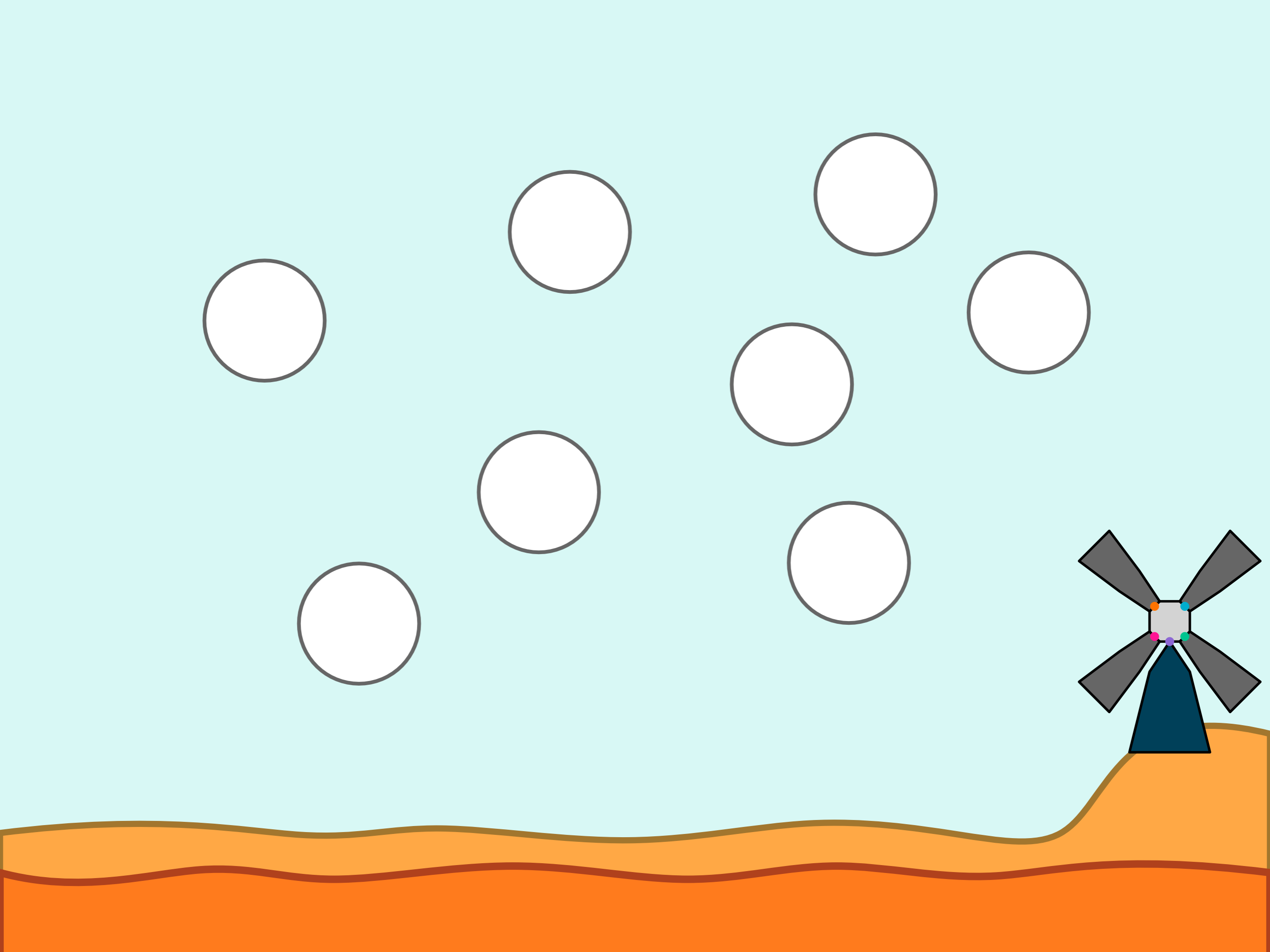


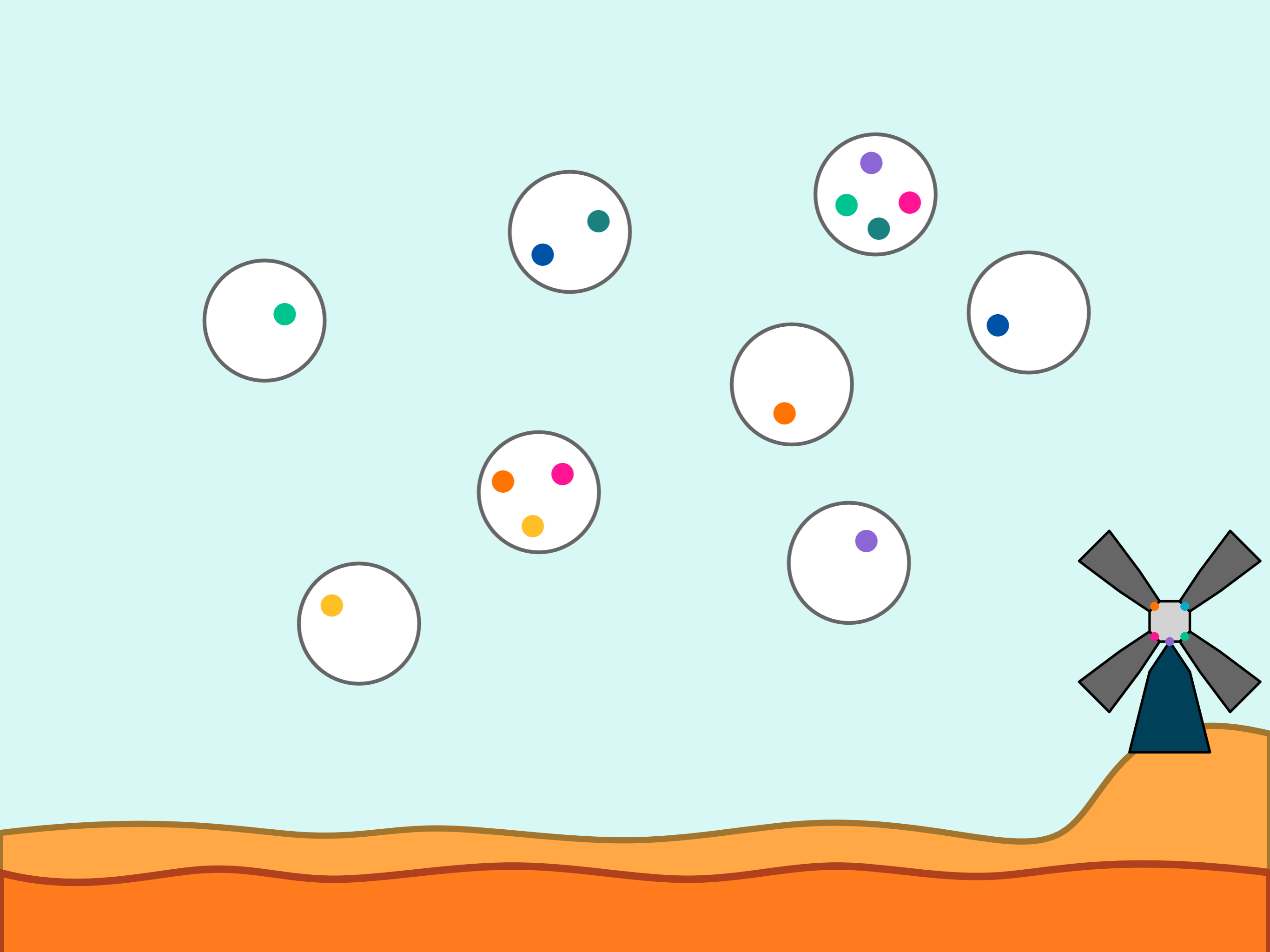


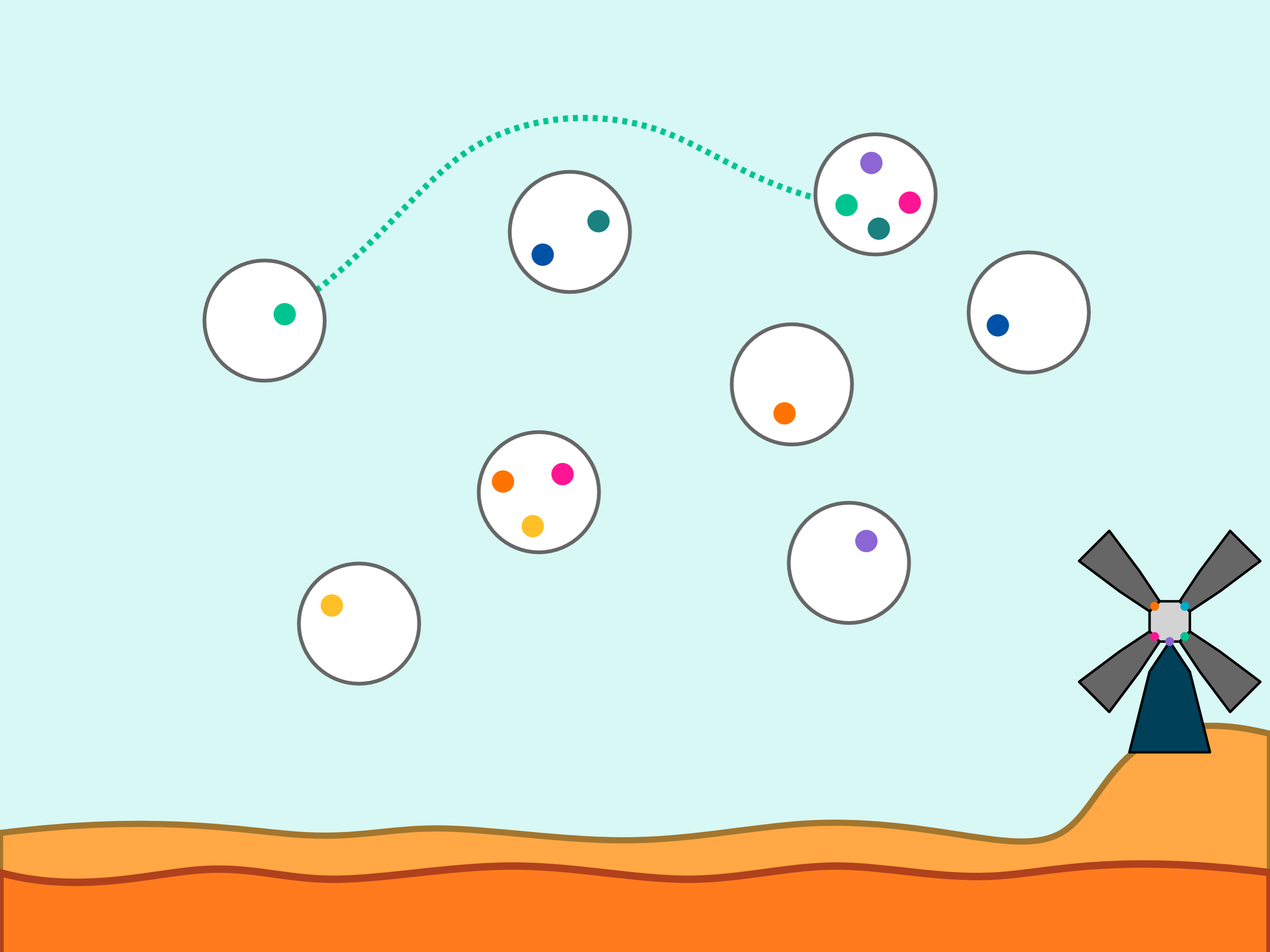


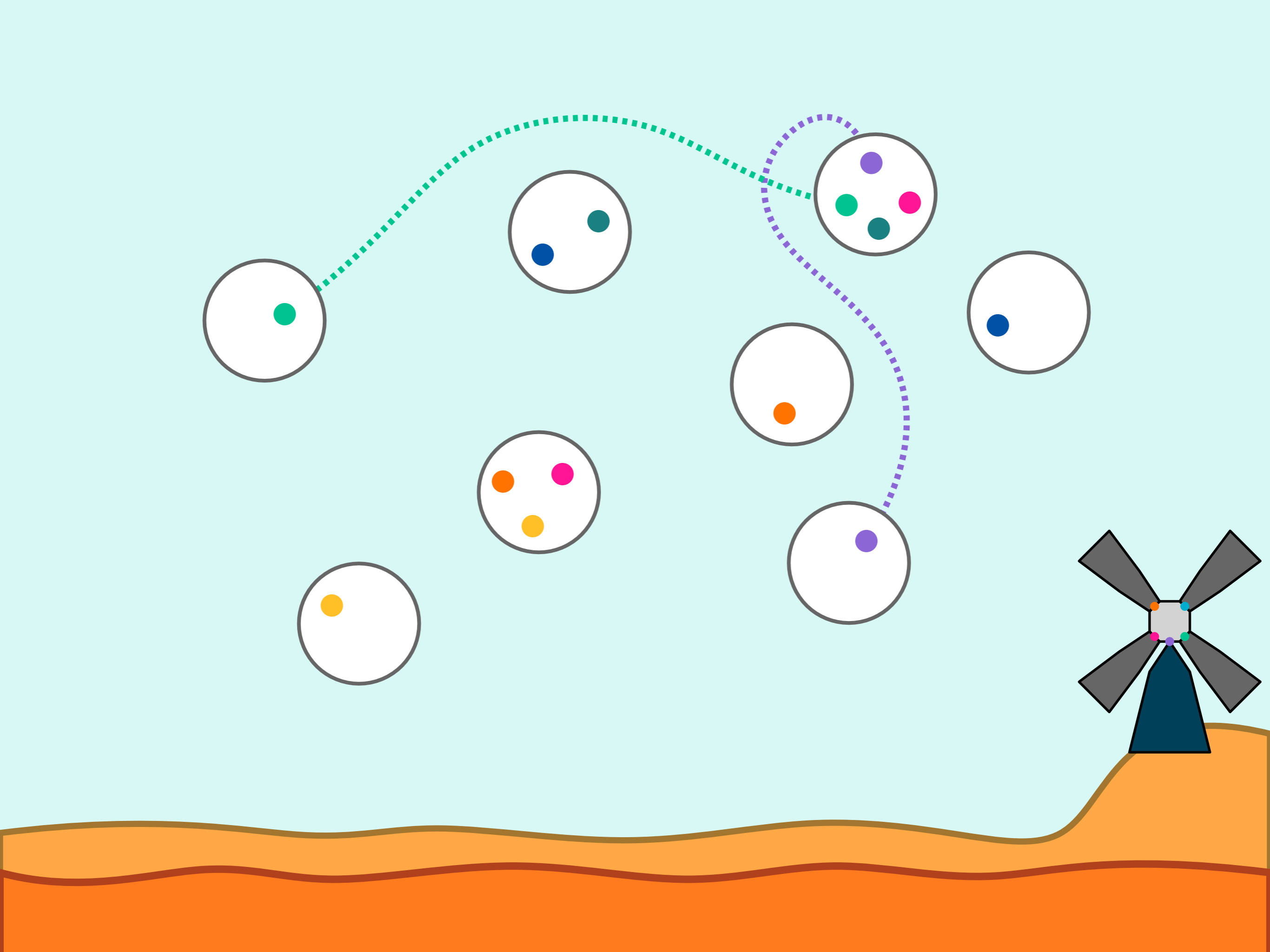
unit disk contact trees

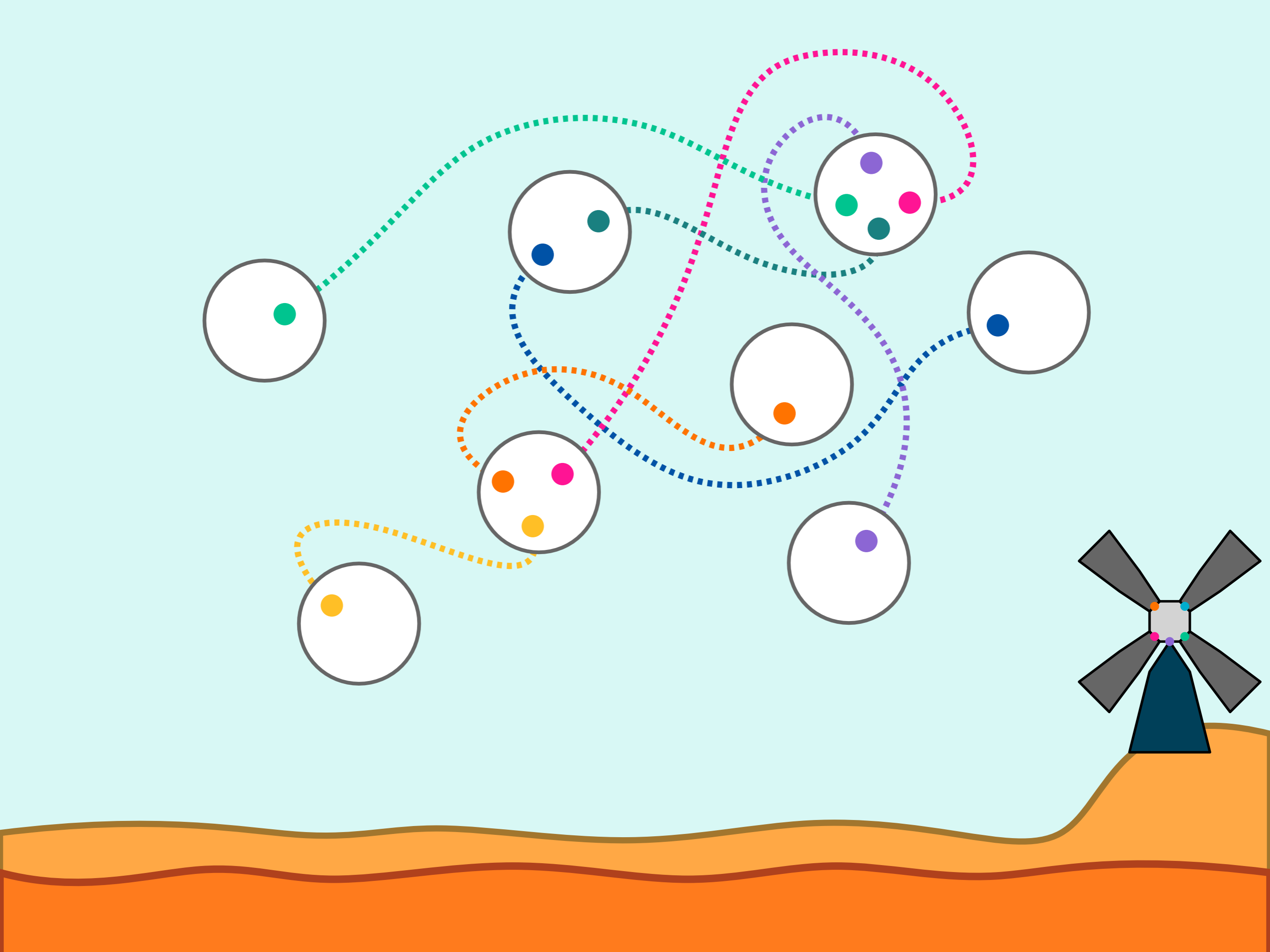


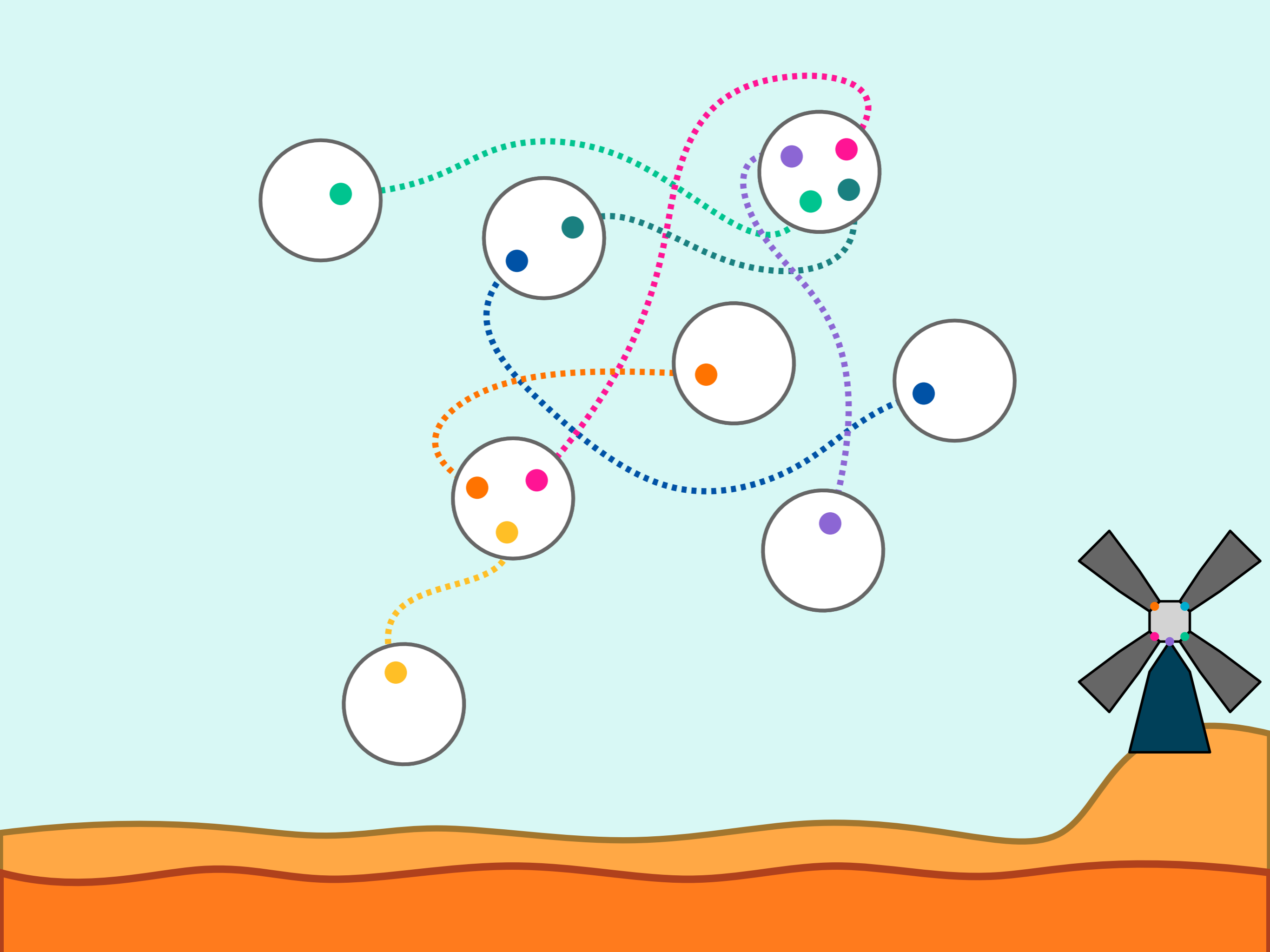


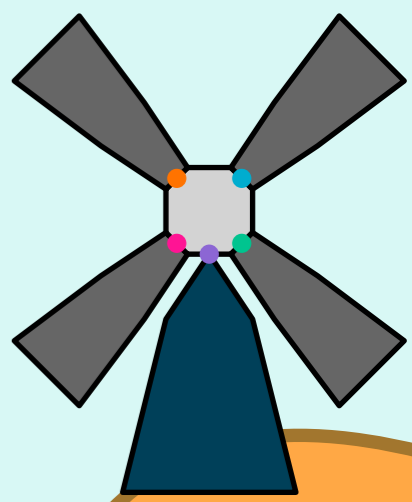
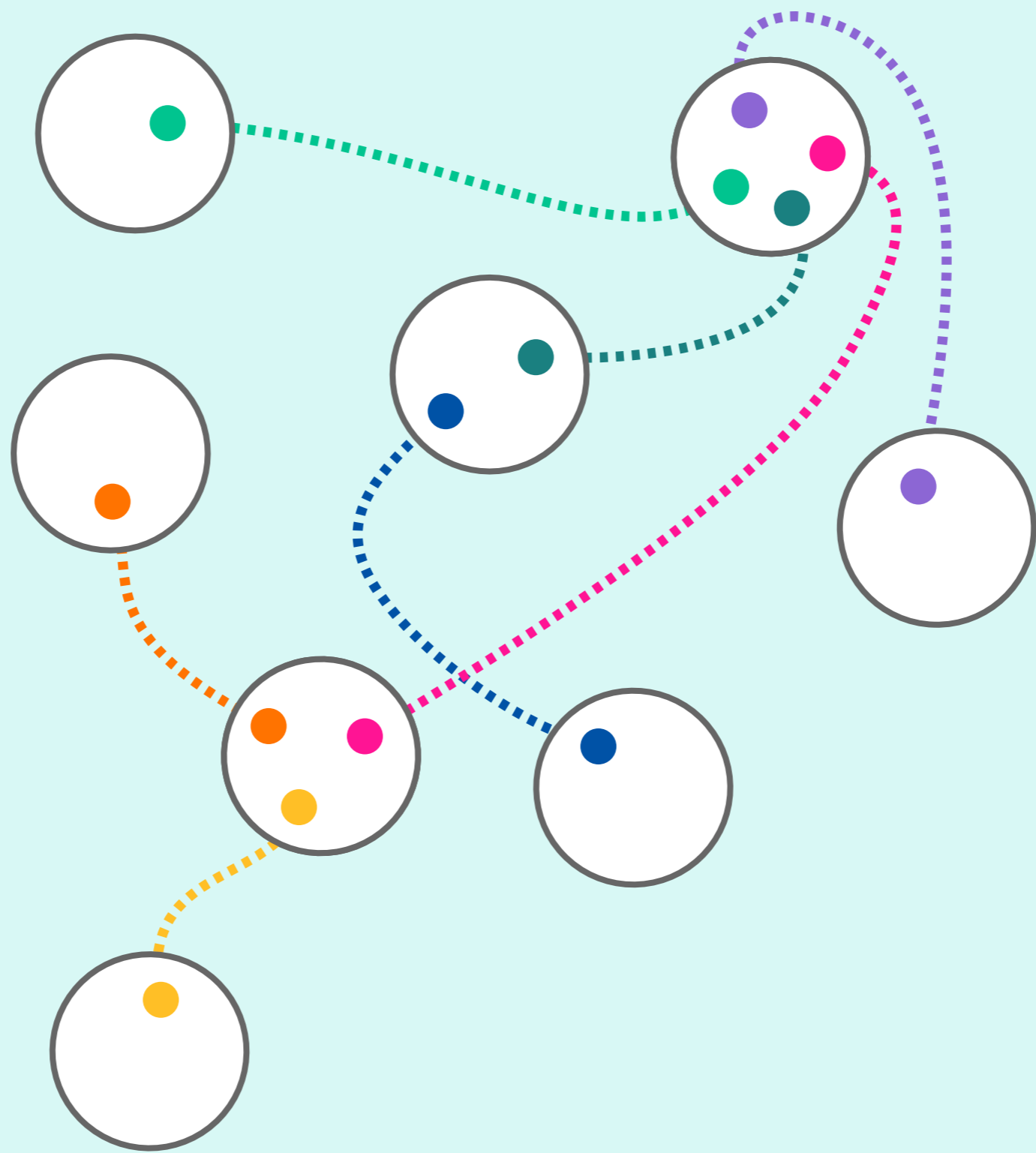


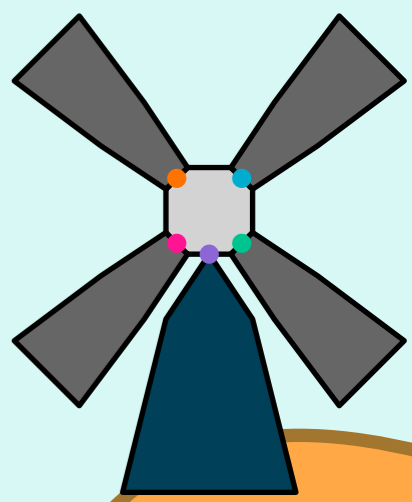
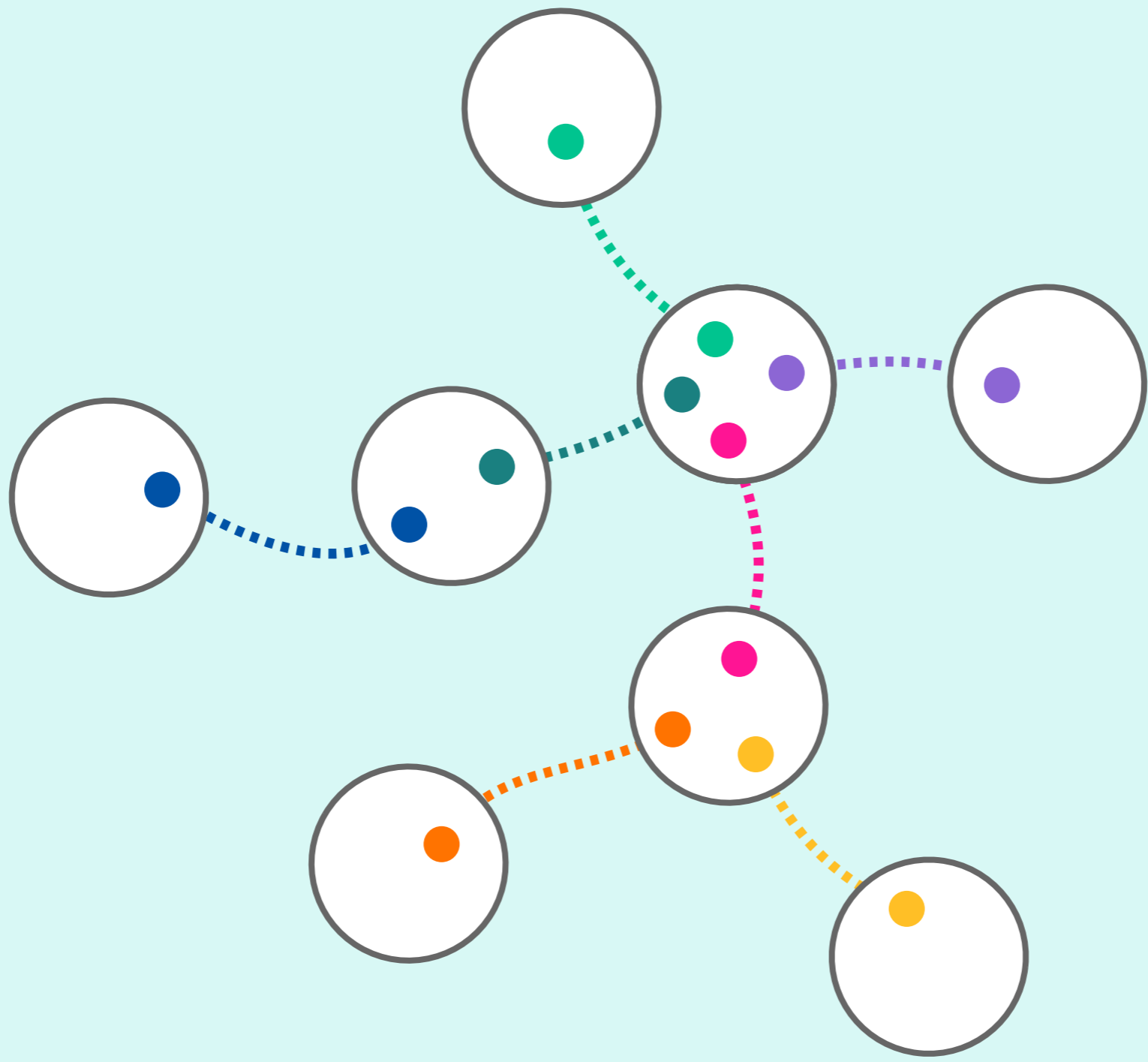


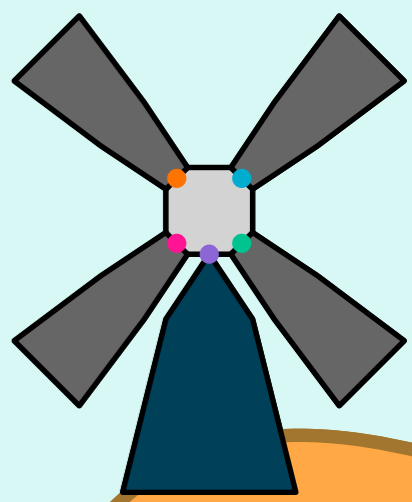
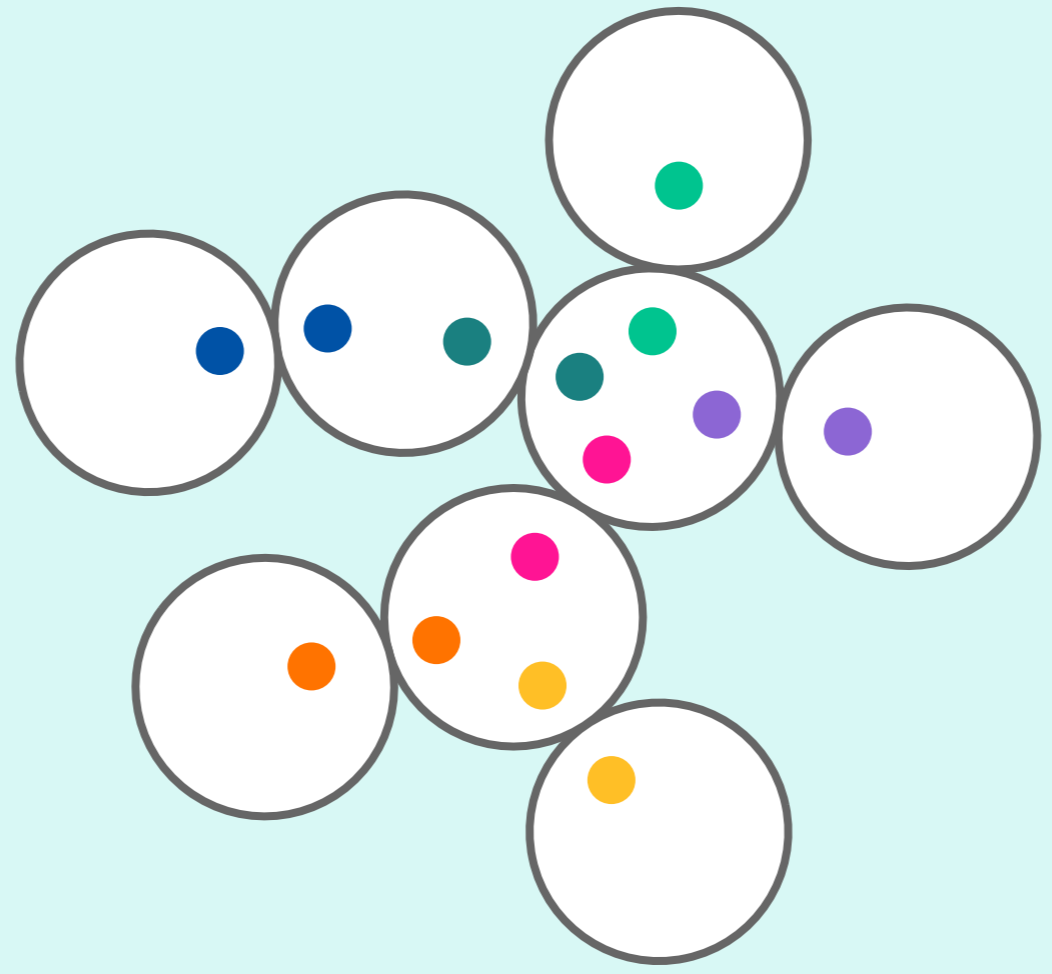


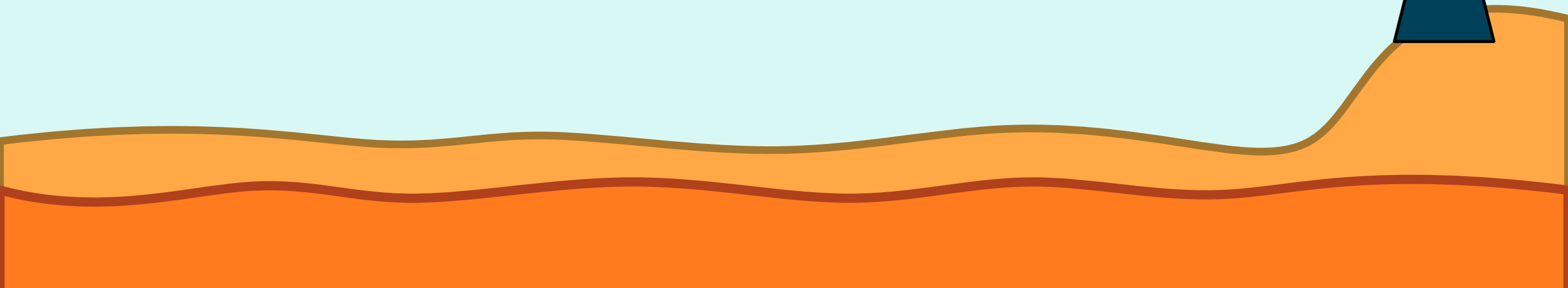
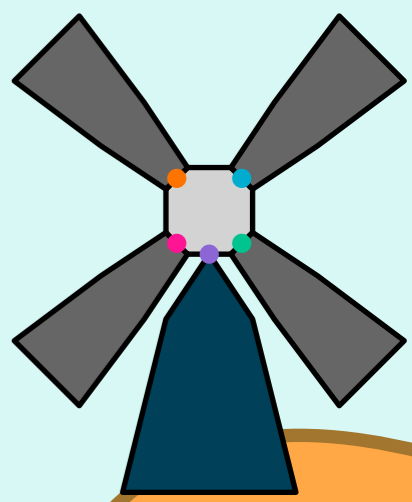
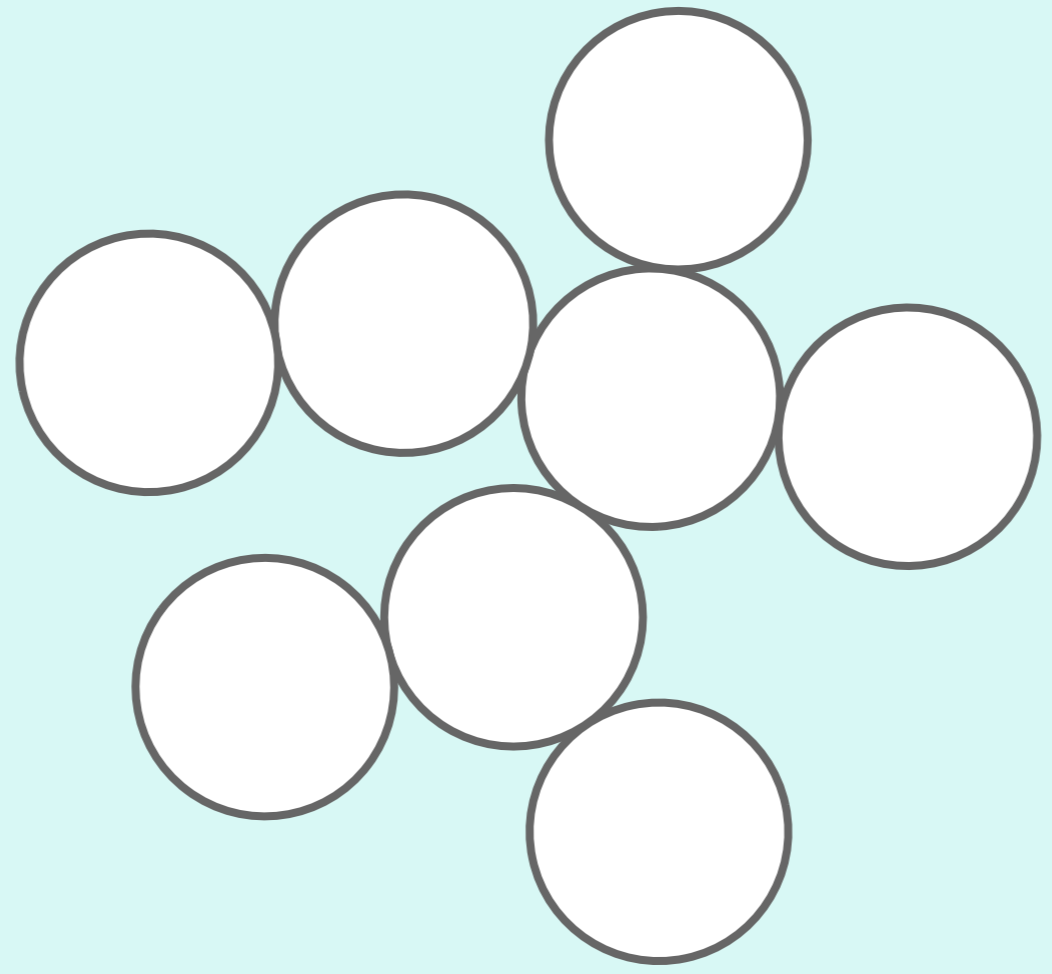


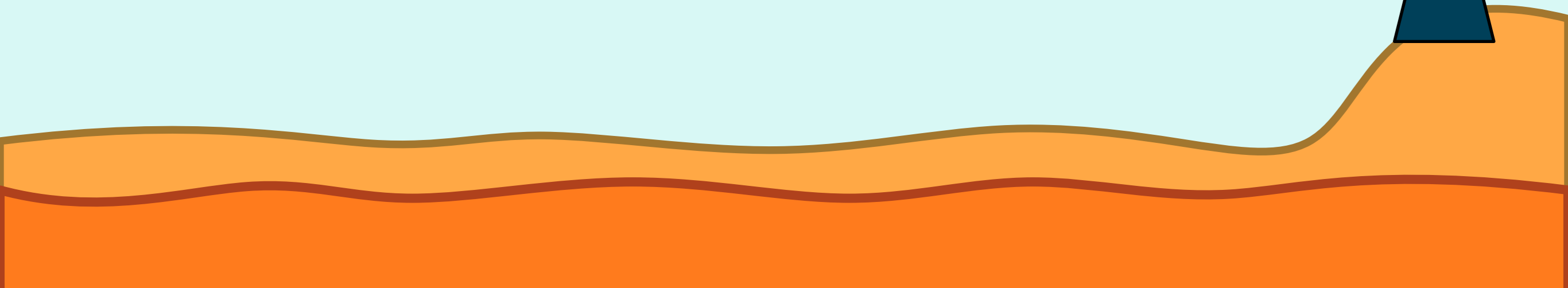
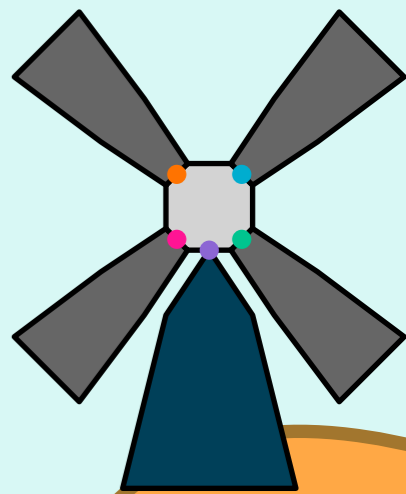
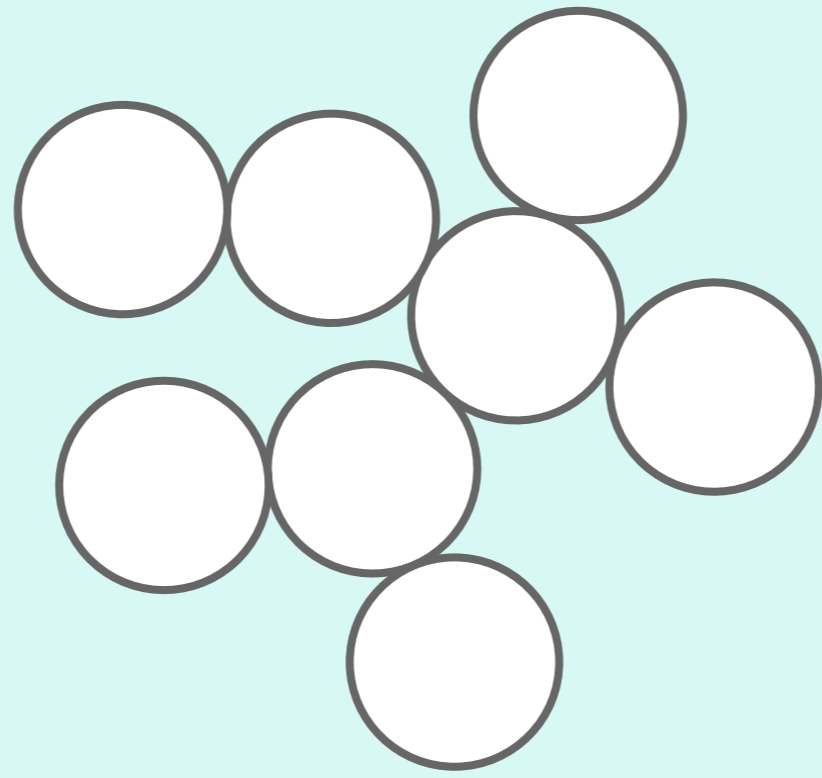


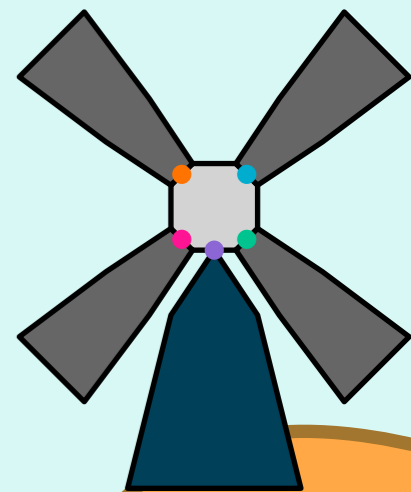
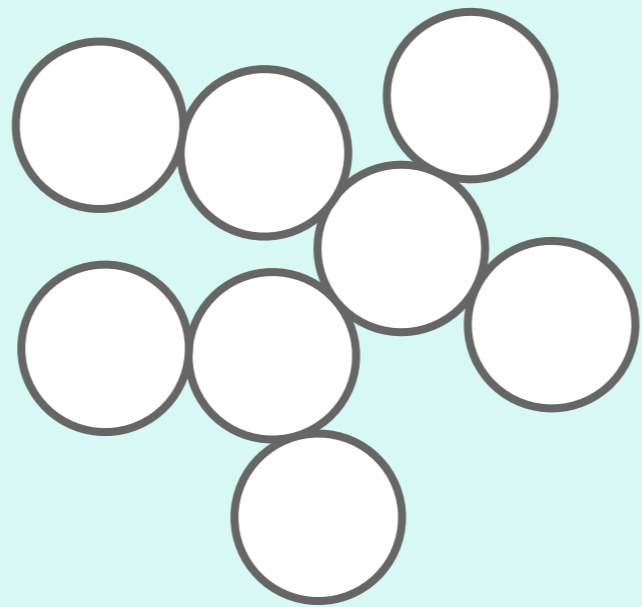


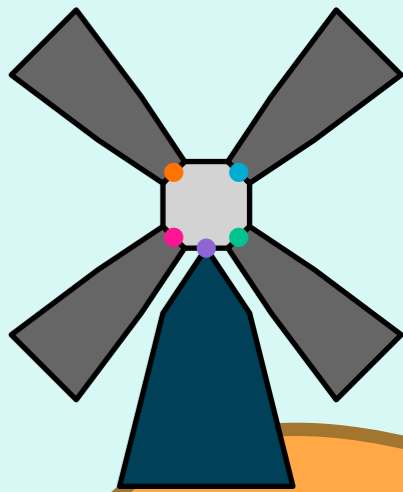
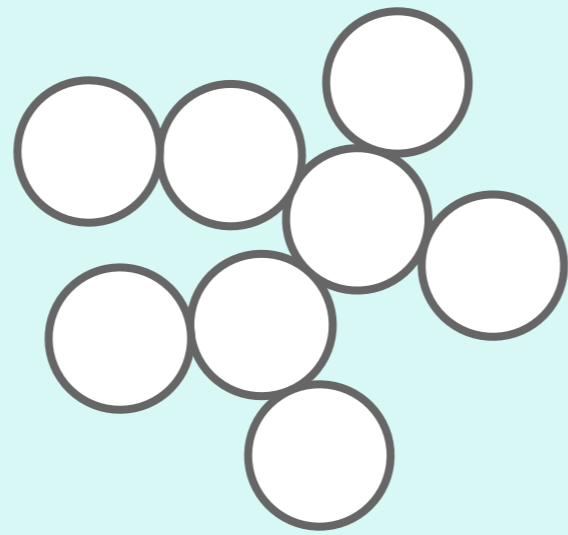


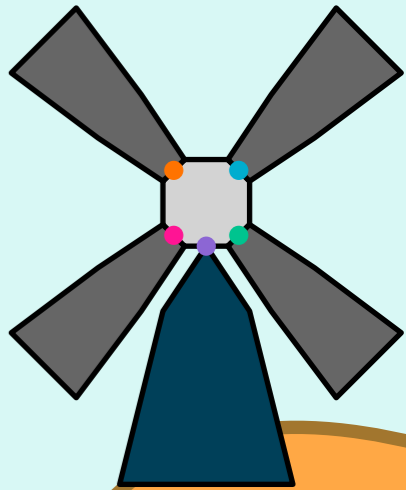
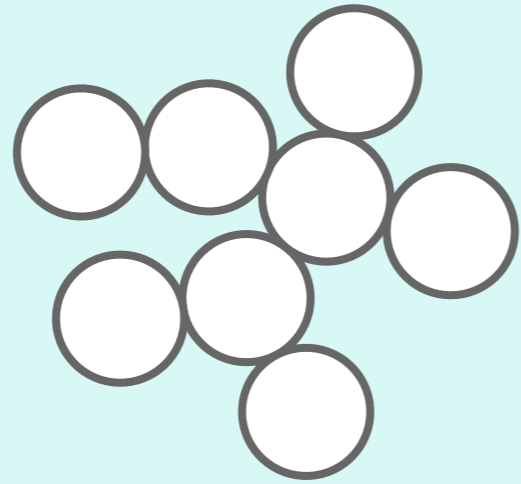


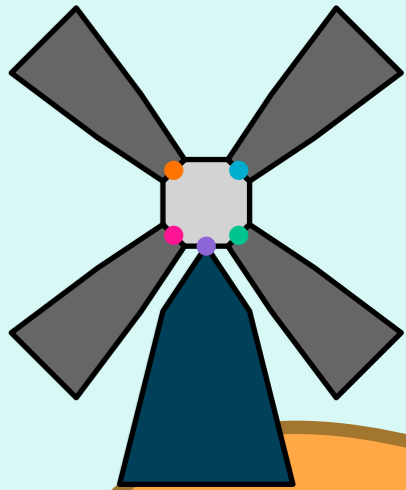
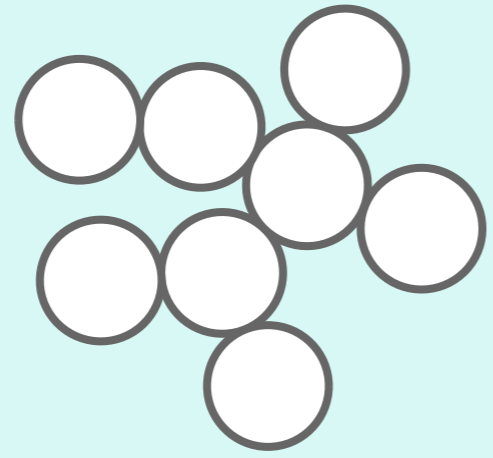


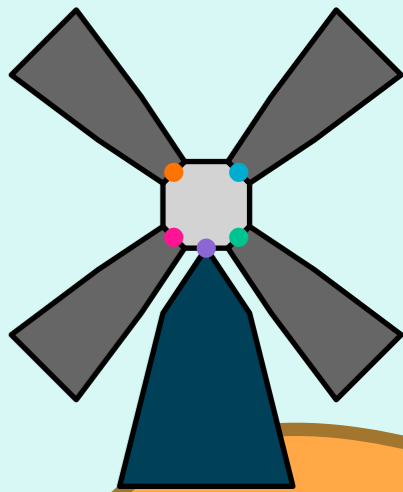
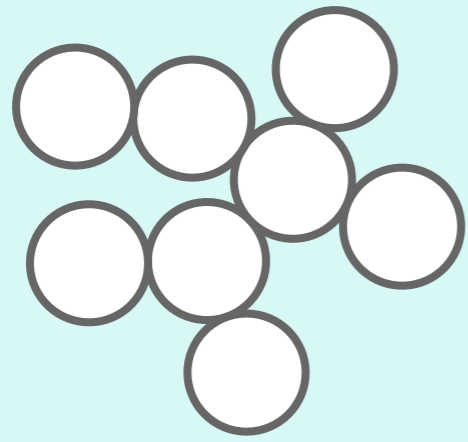


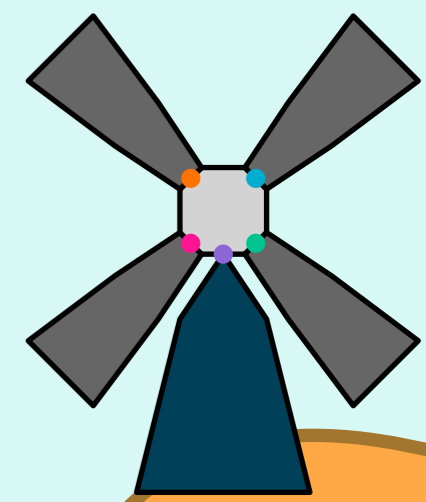
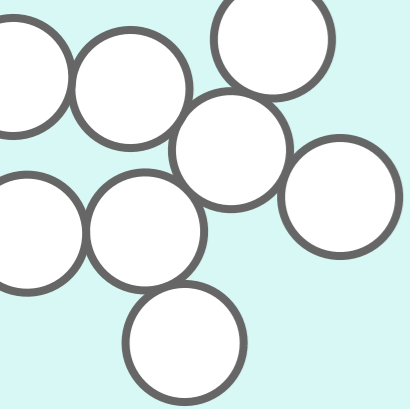


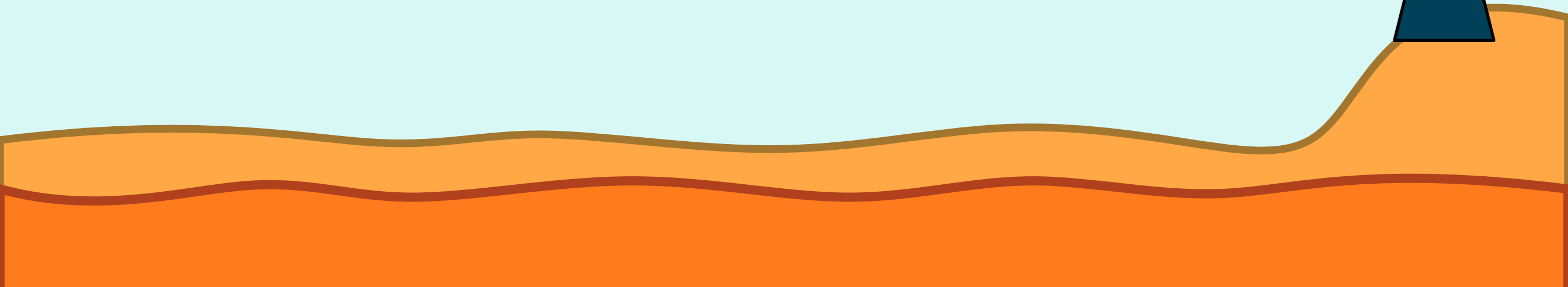
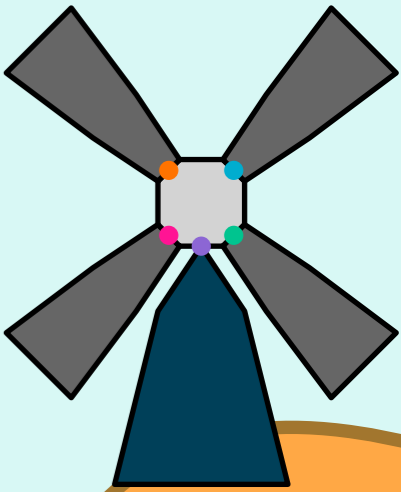
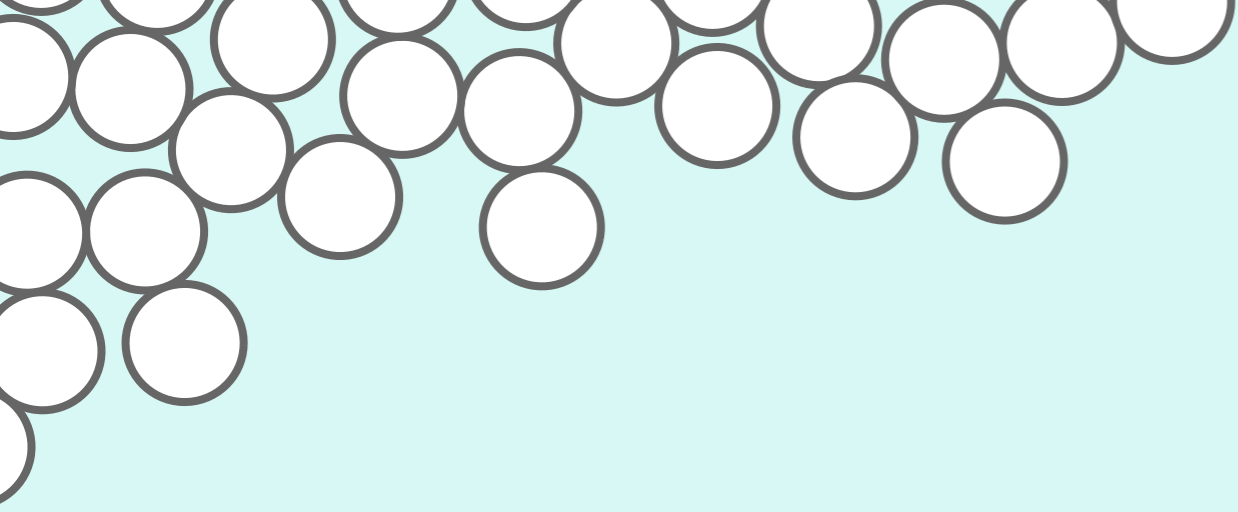


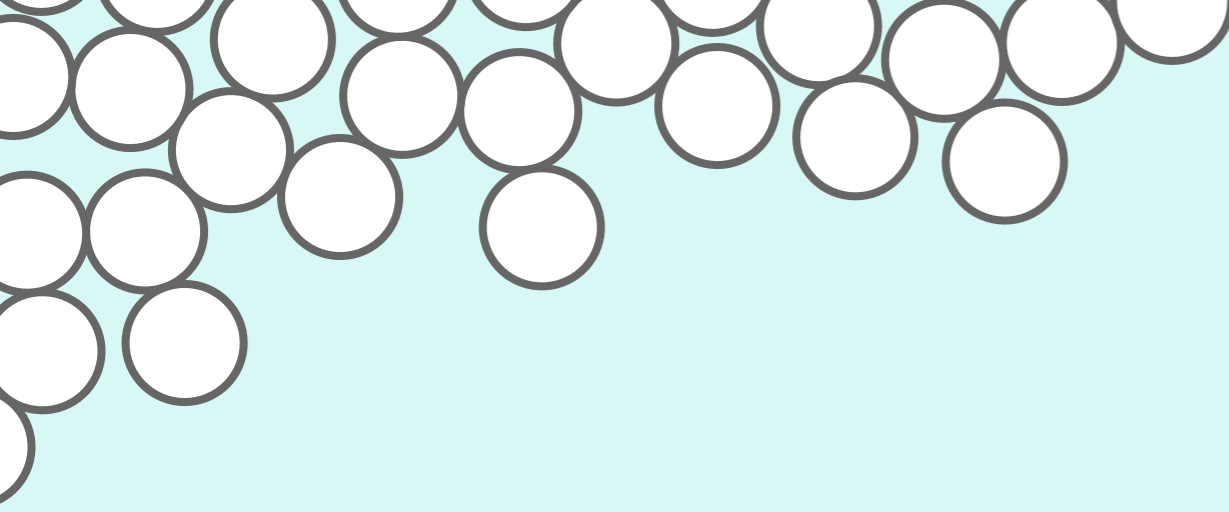




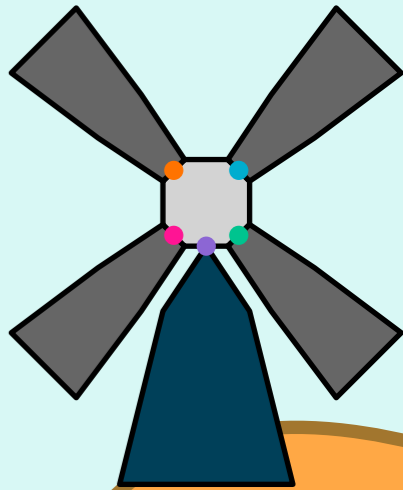


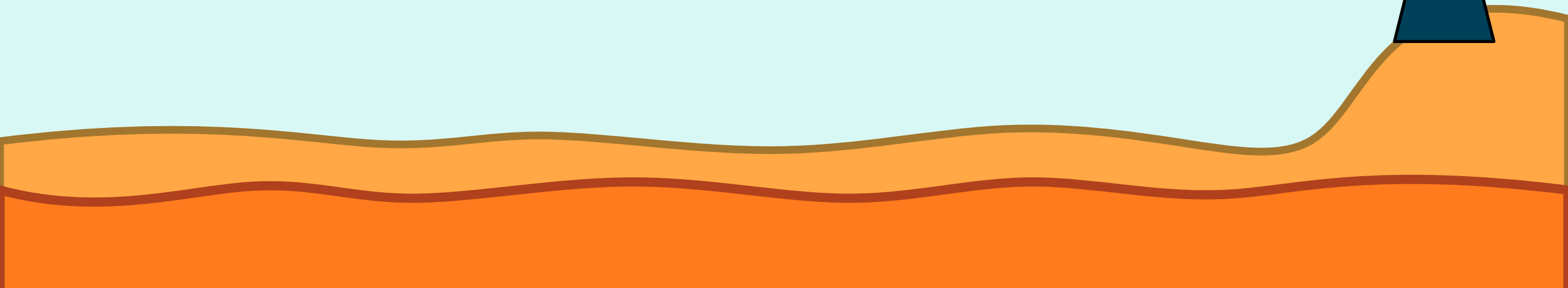
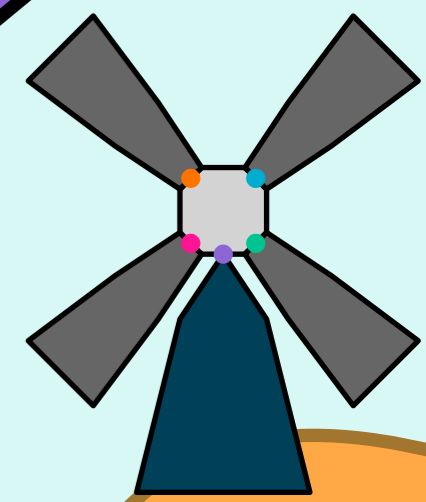
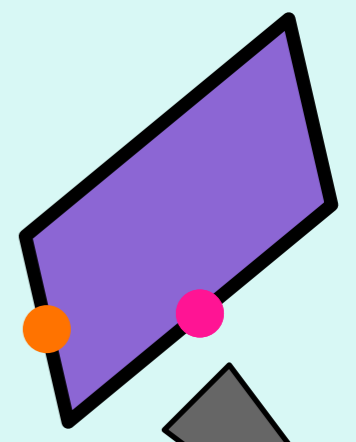
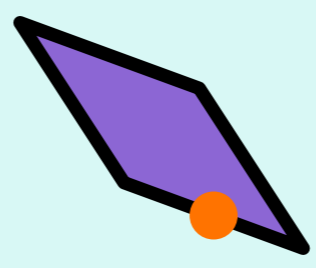
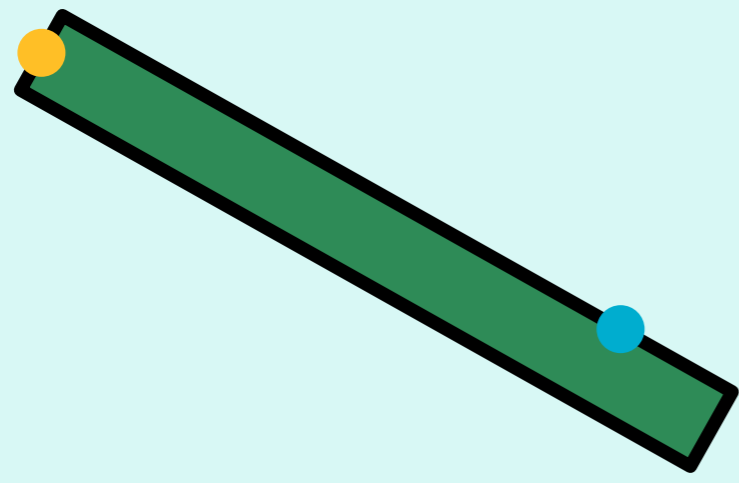
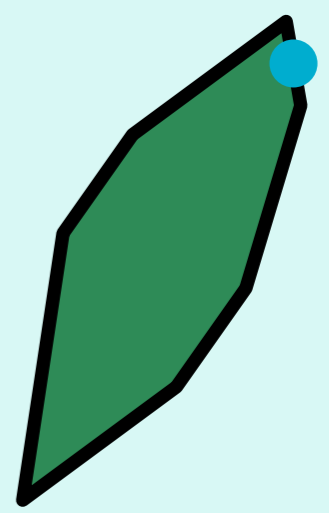
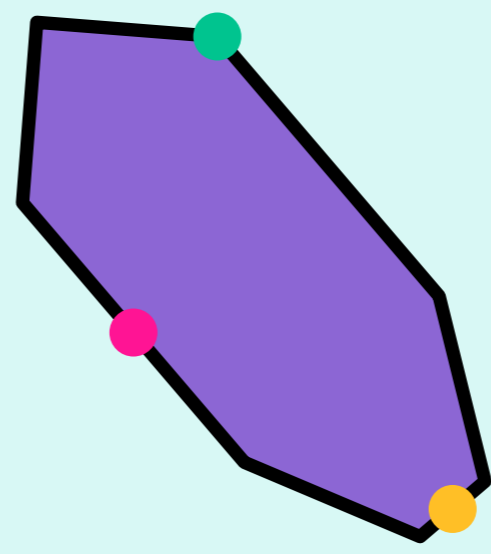
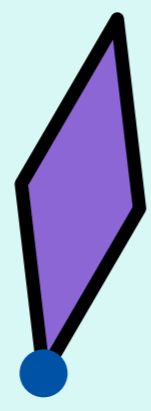
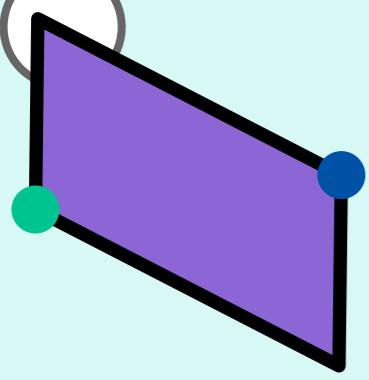
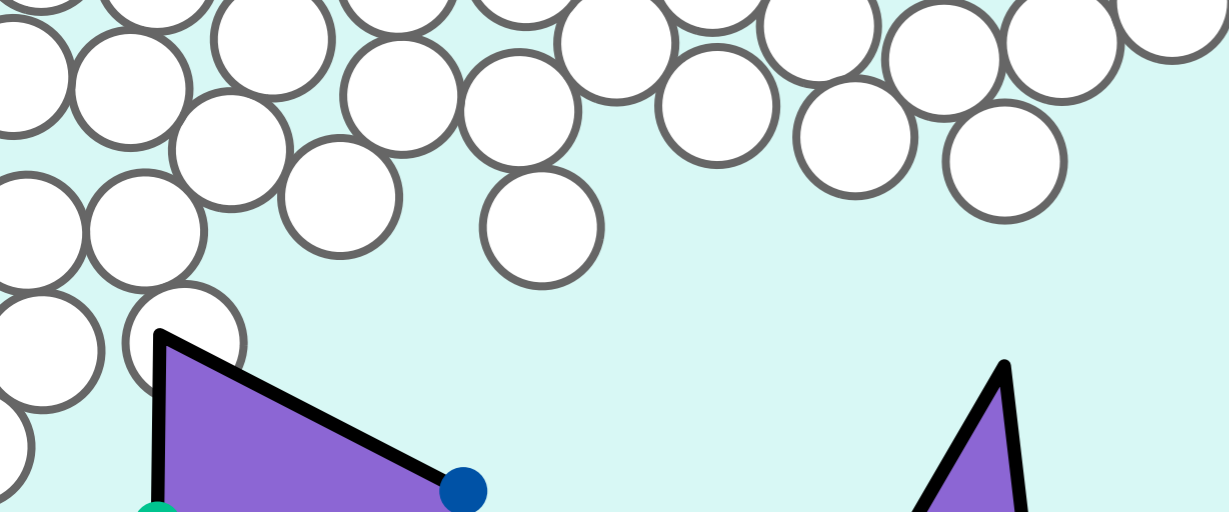


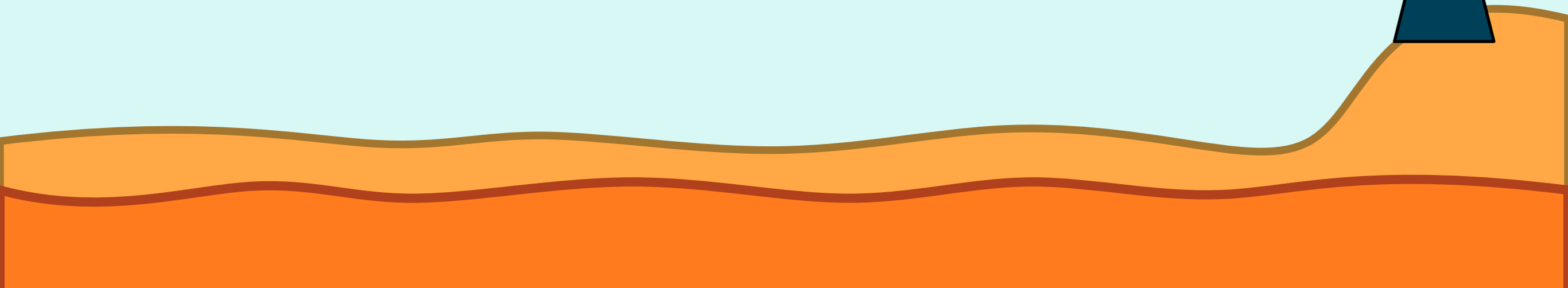
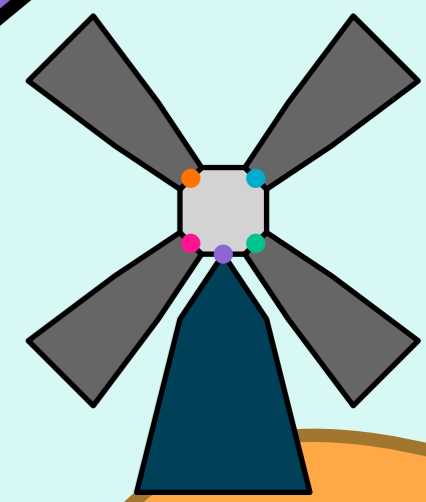
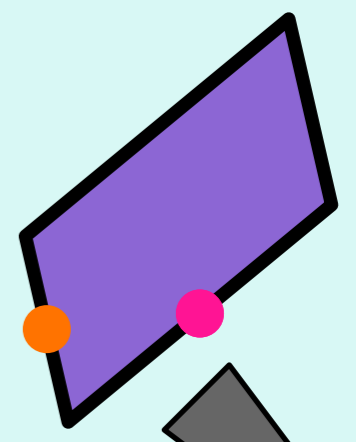
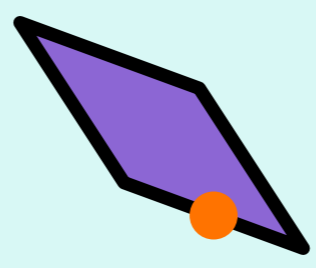
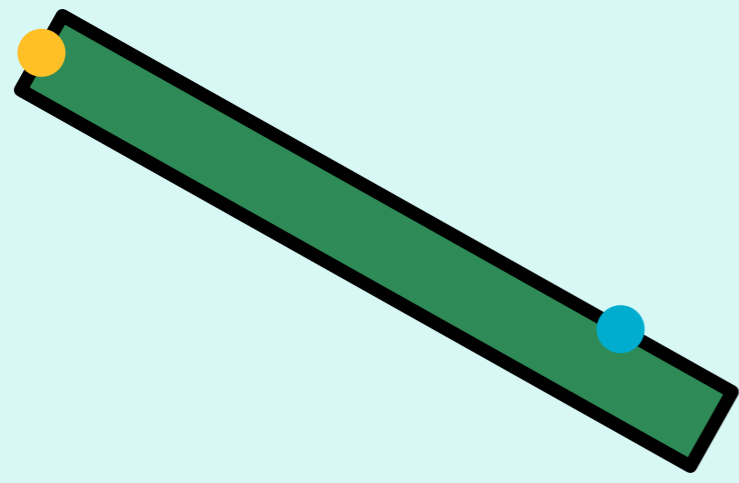
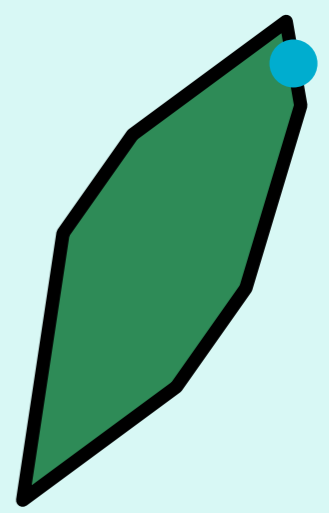
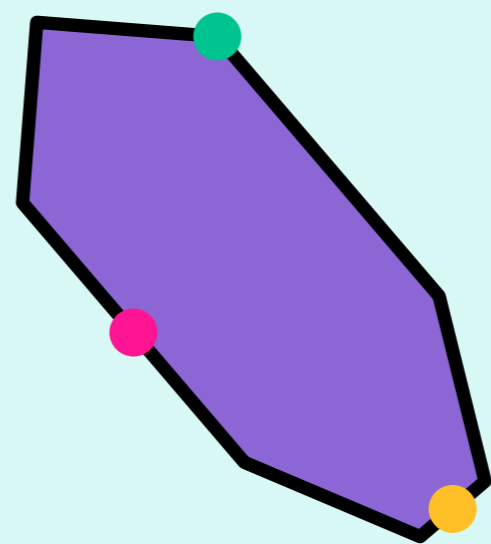
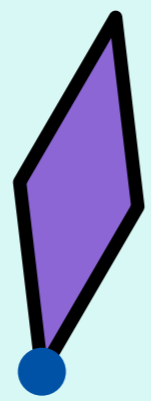
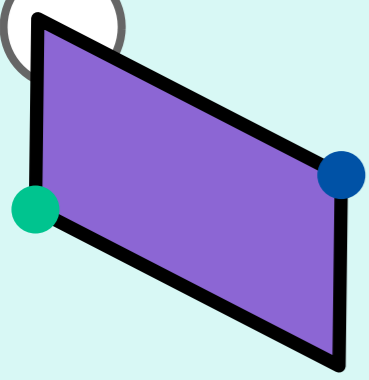
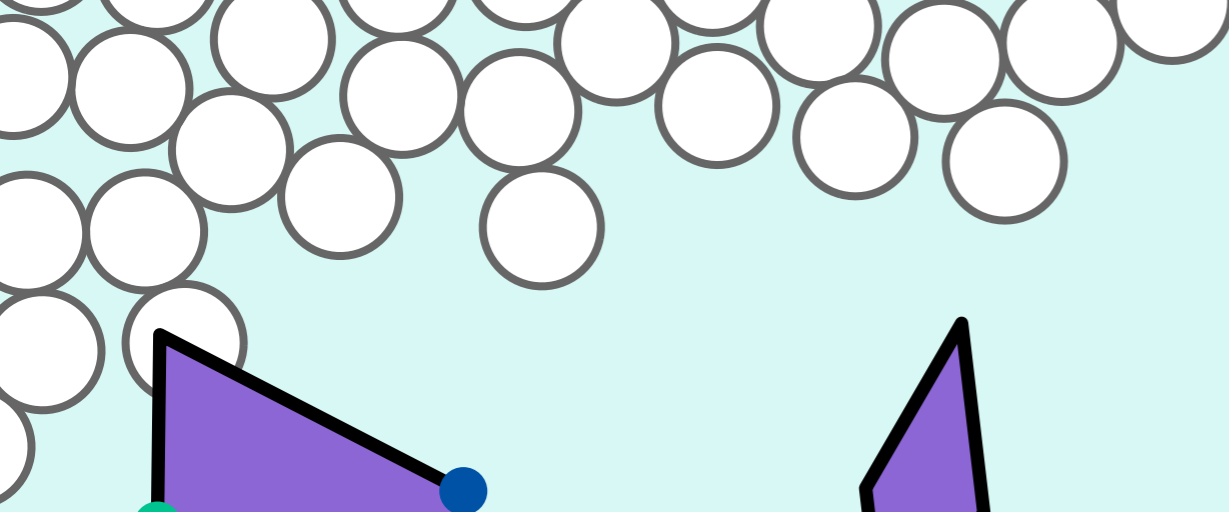


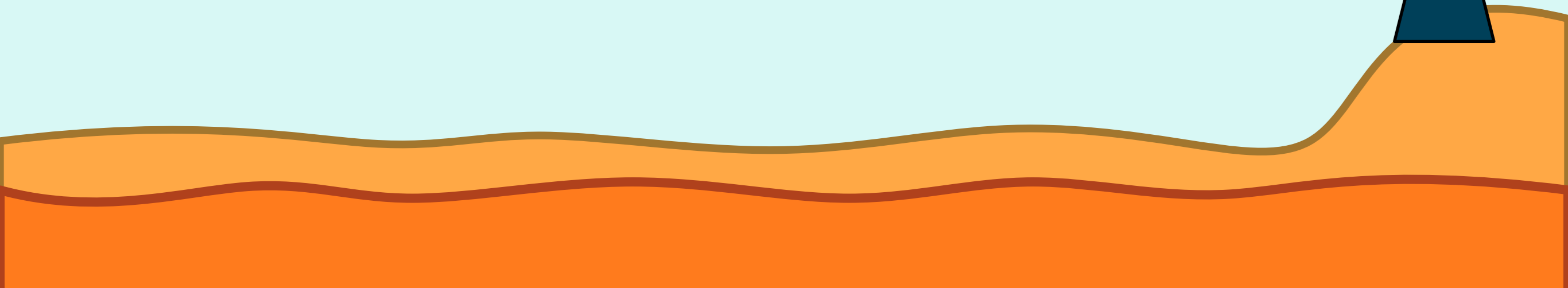
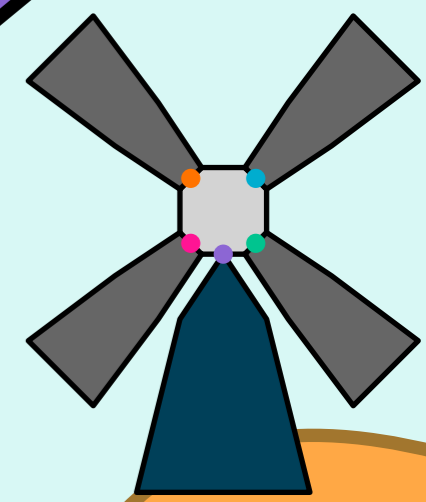
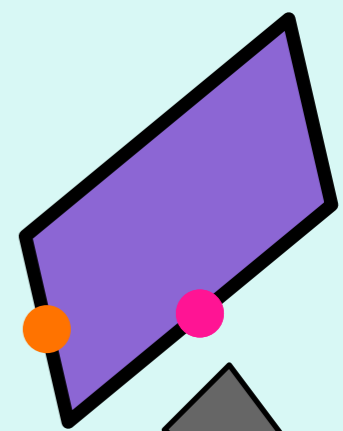
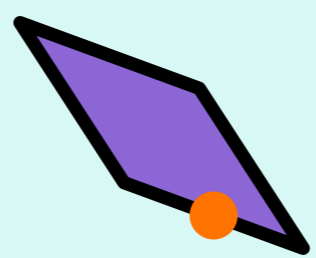
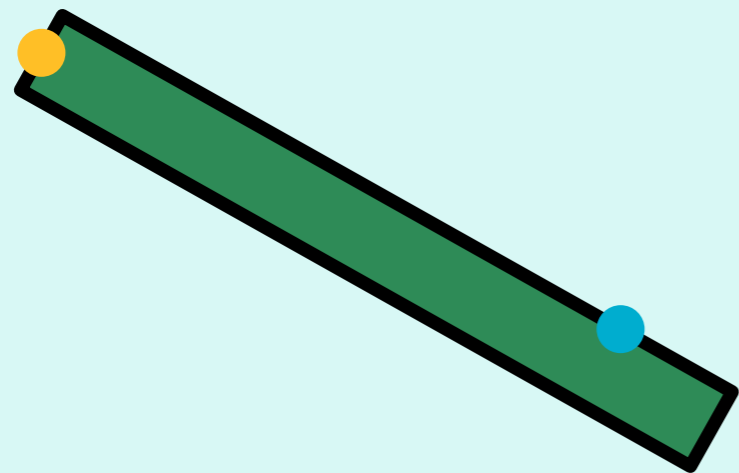
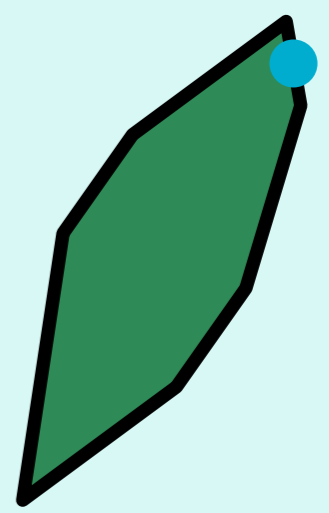
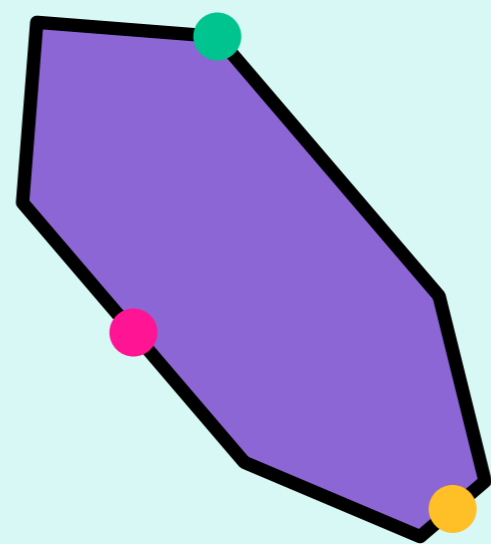
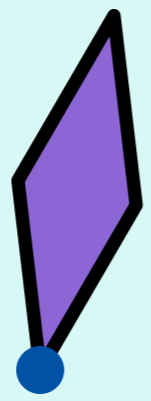
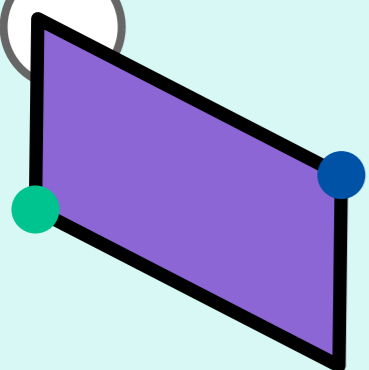
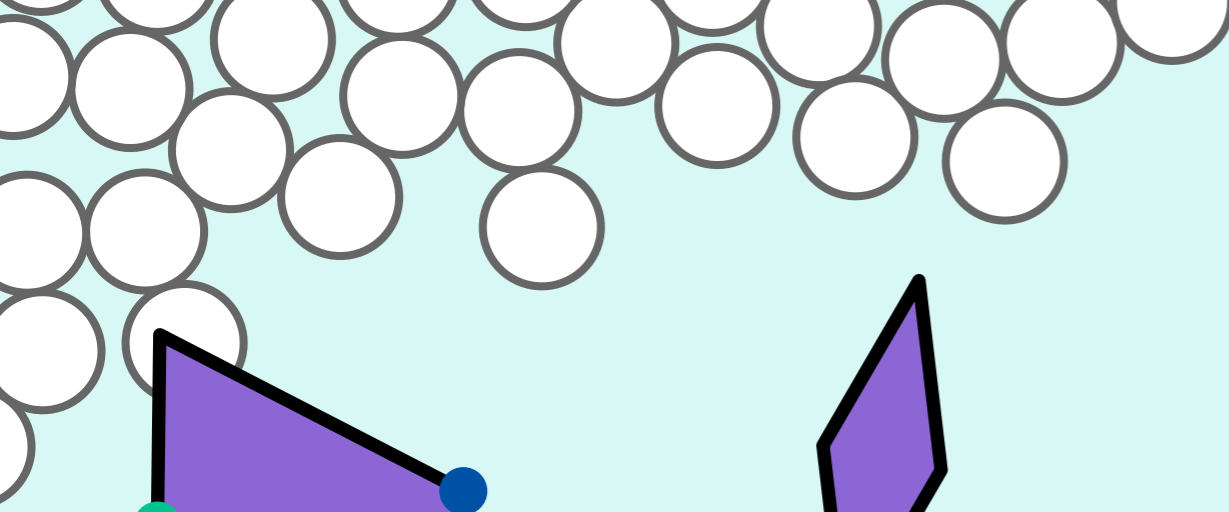


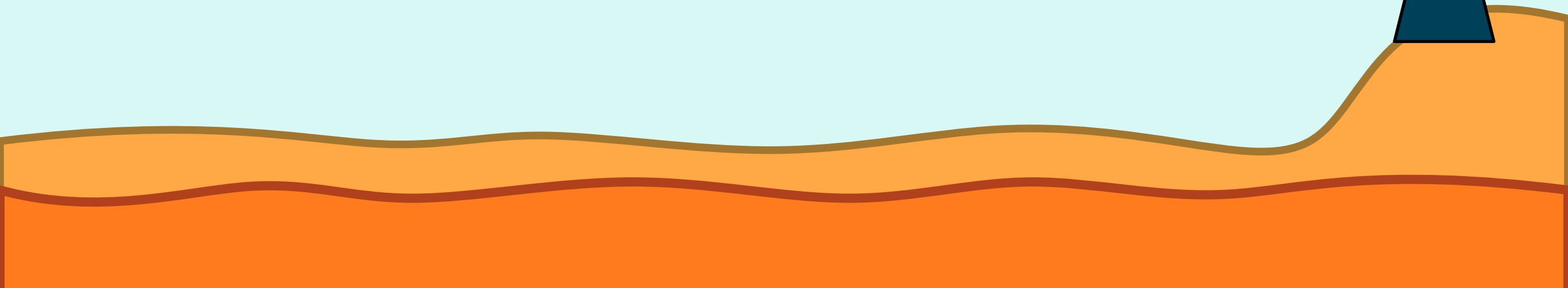
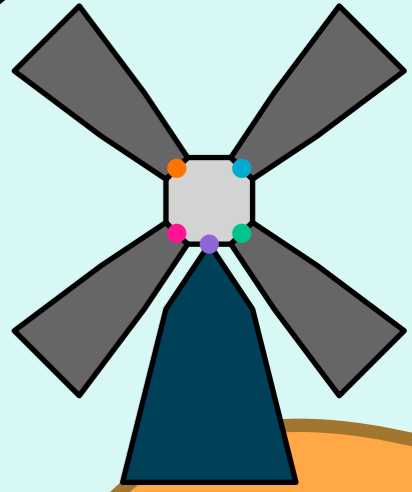
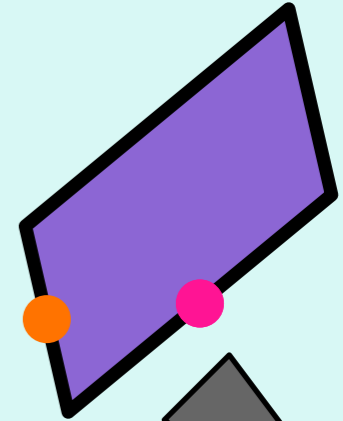
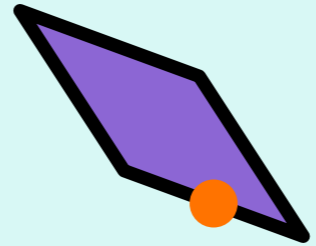
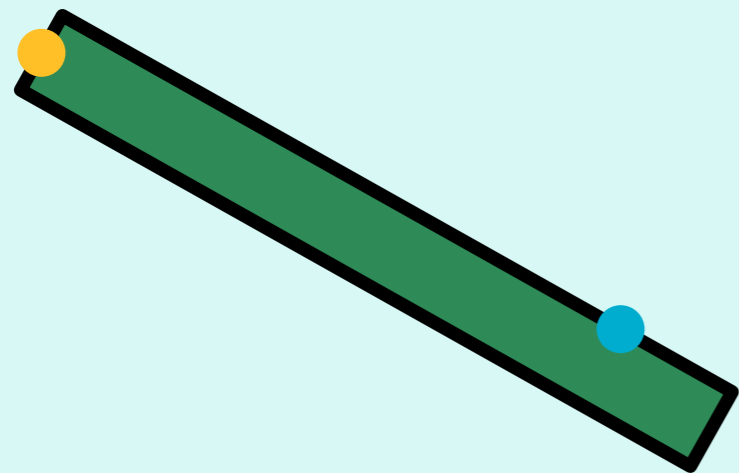
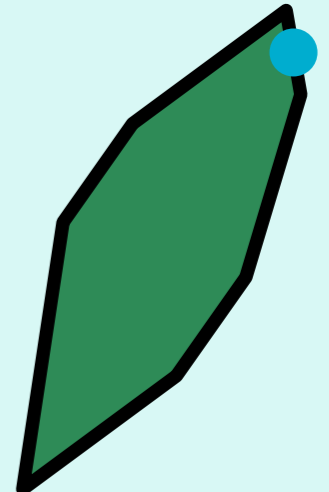
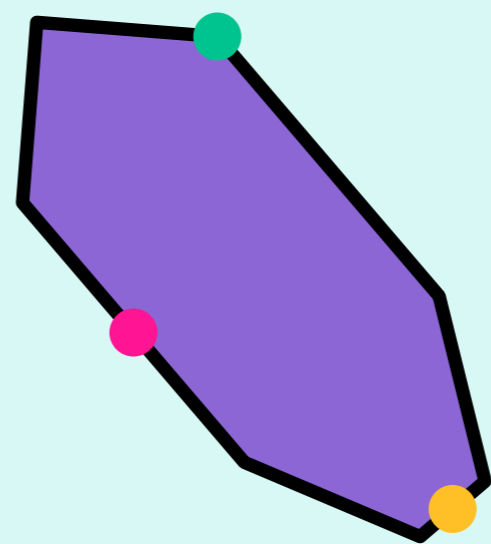
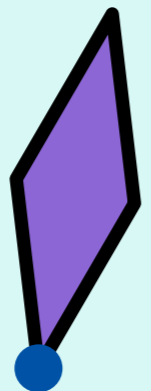
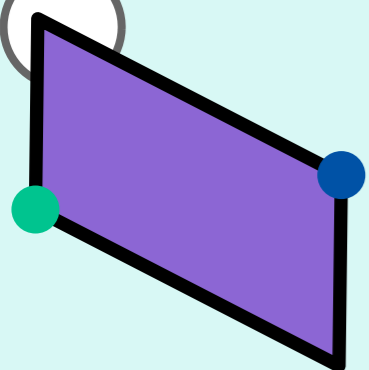
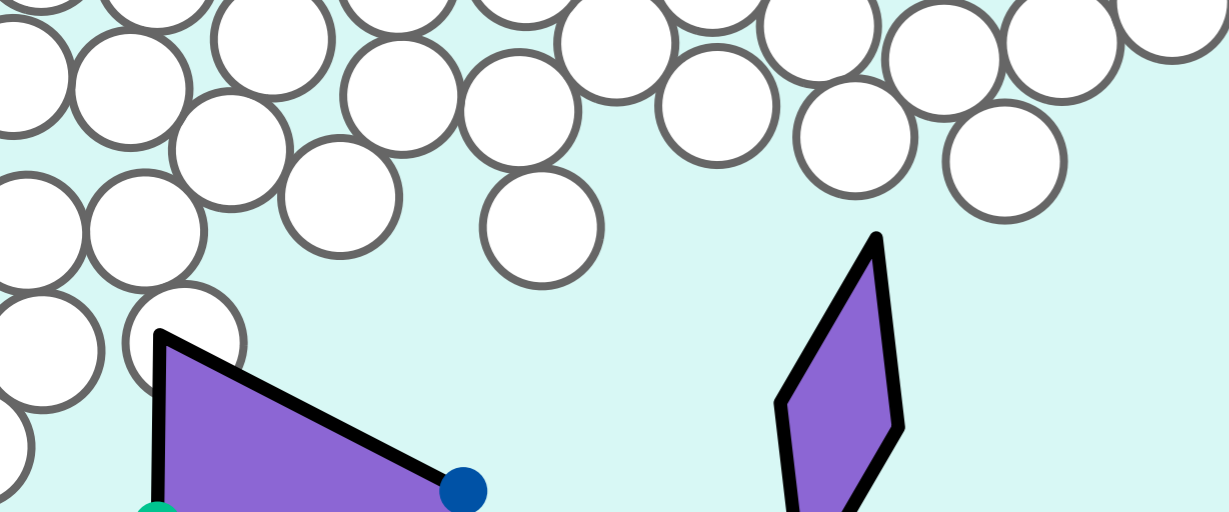
polygonal linkages

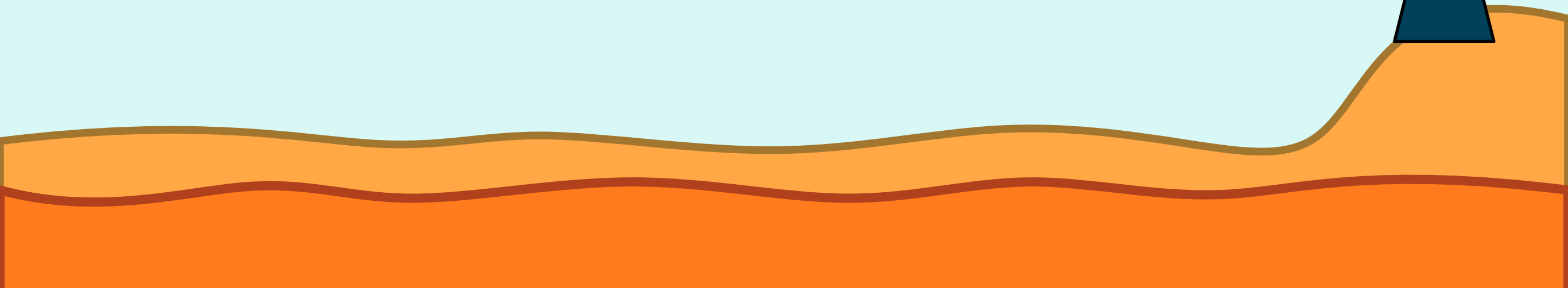
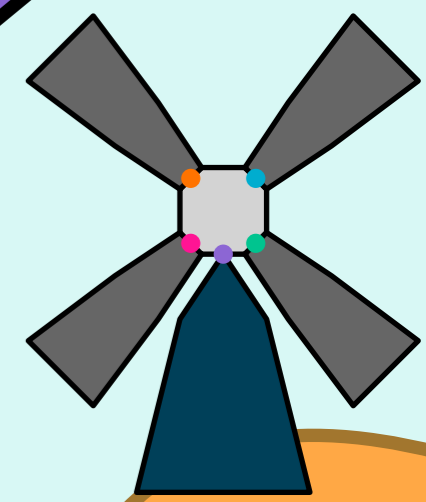
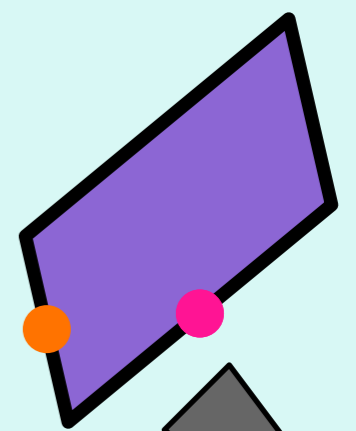
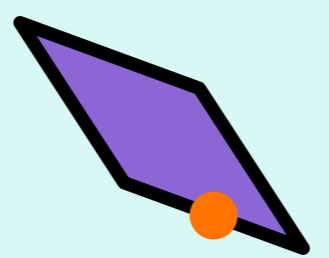
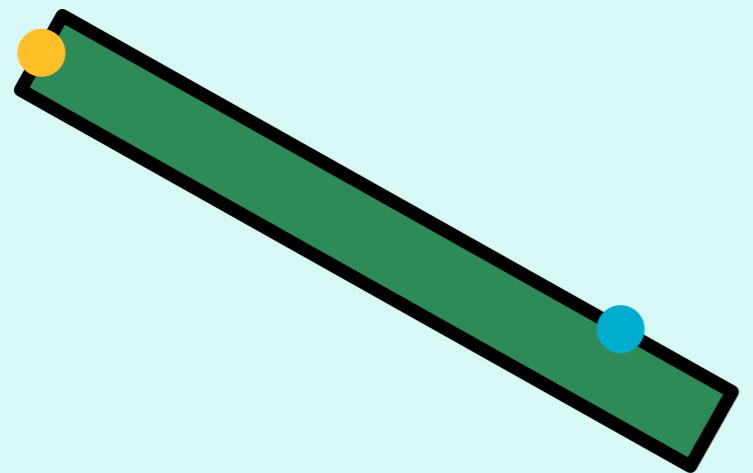
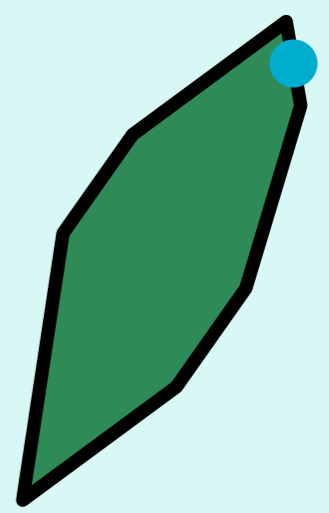
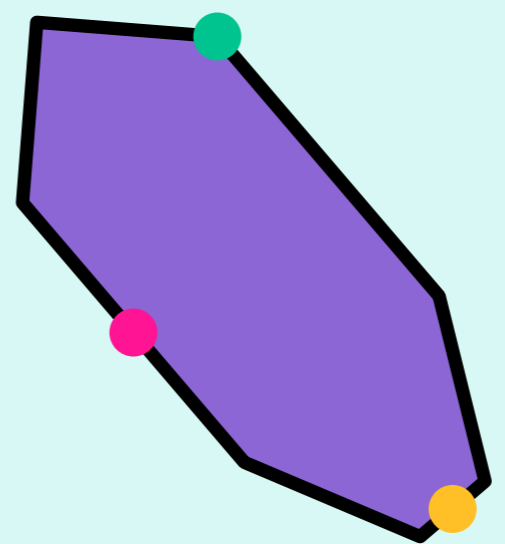
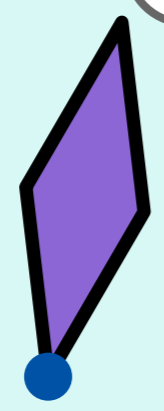
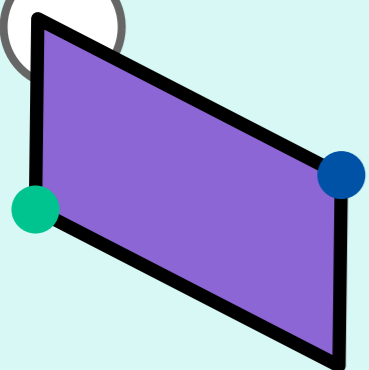
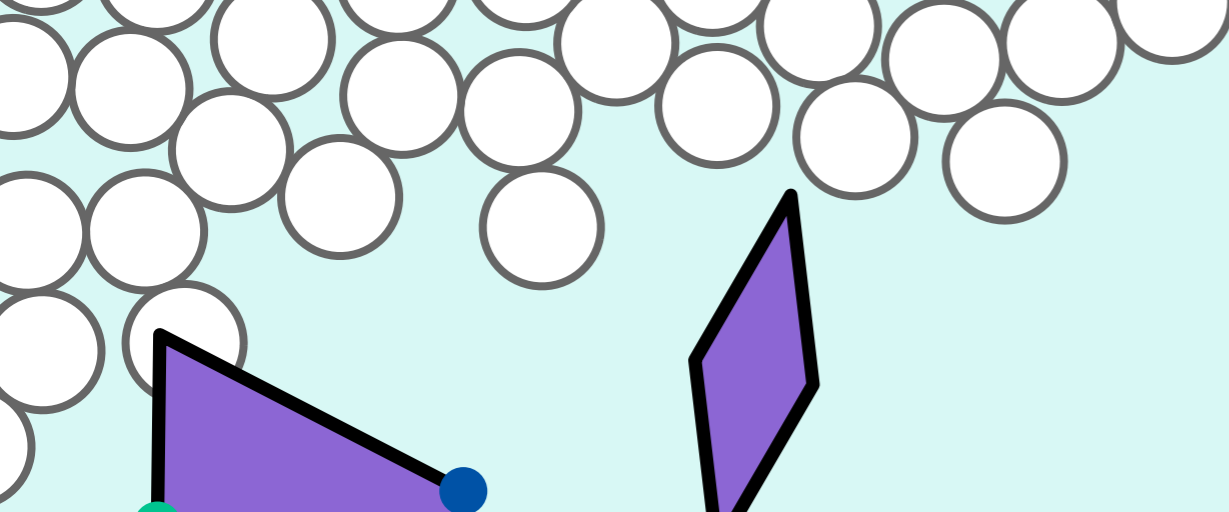


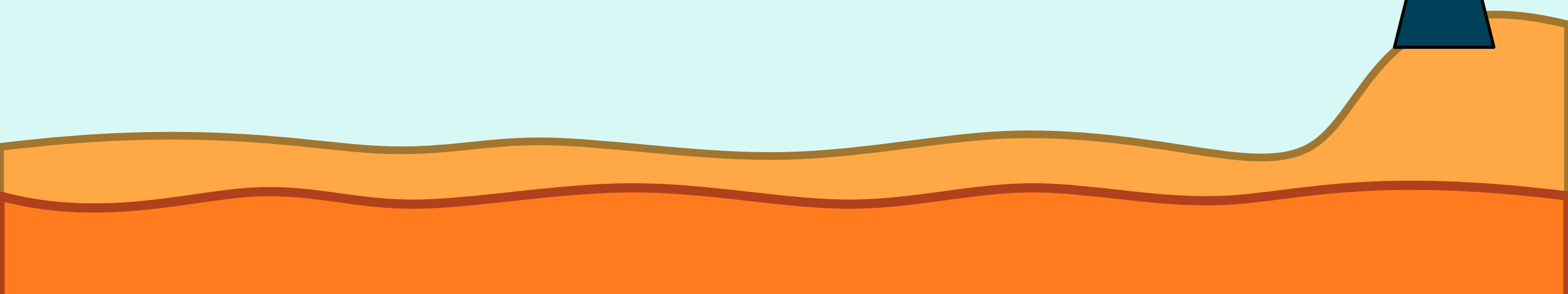
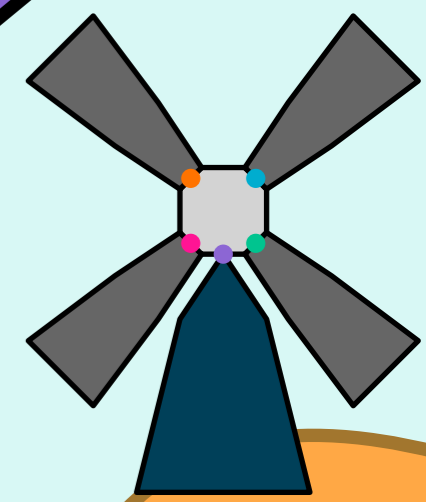
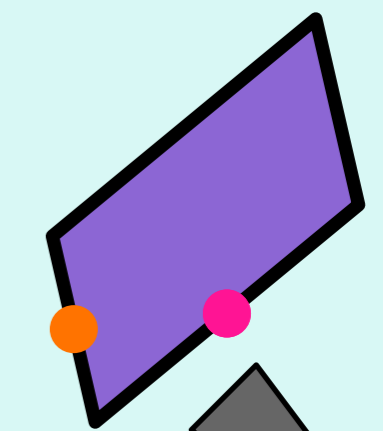
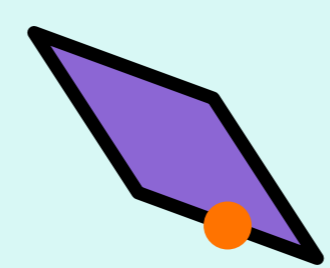
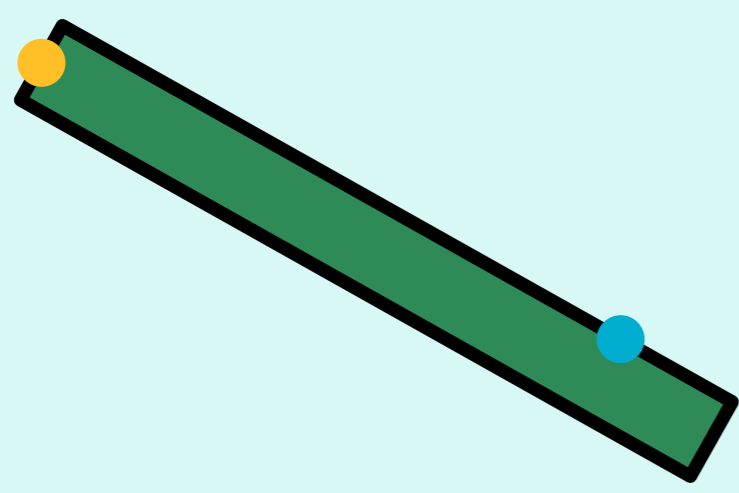
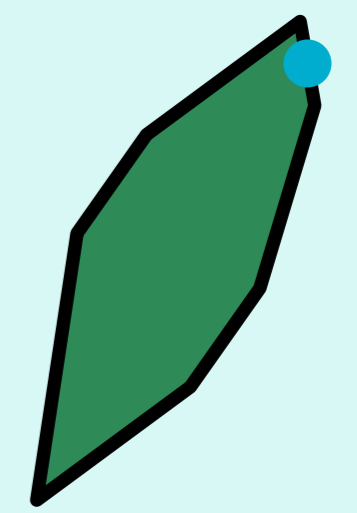
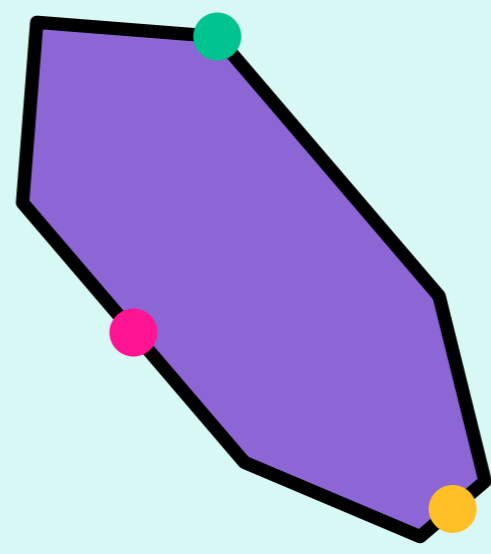
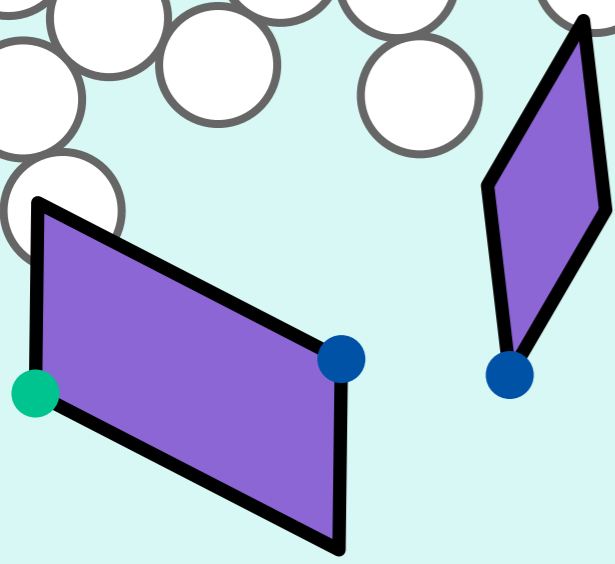
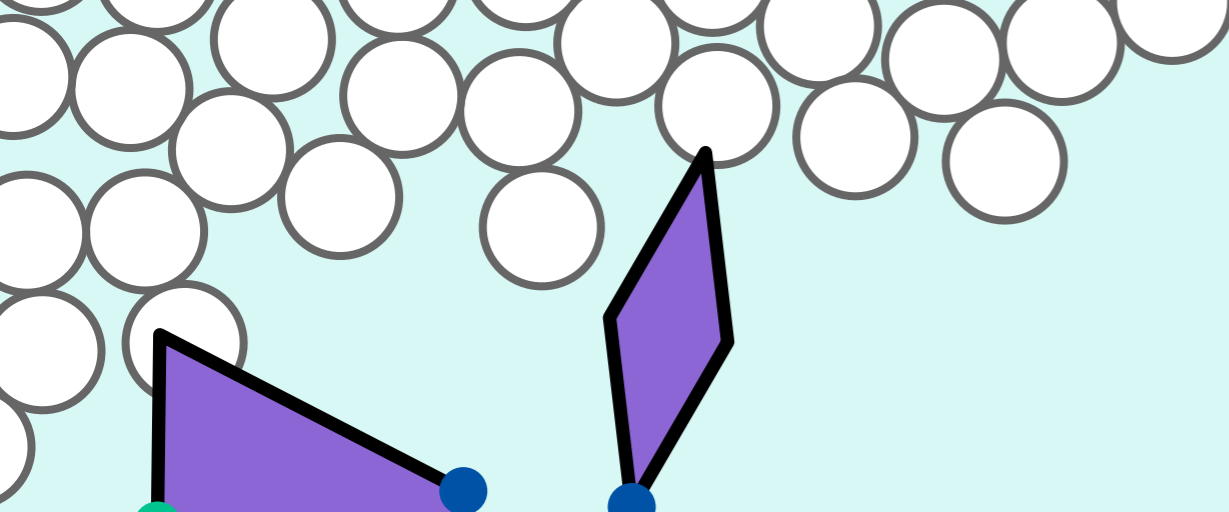


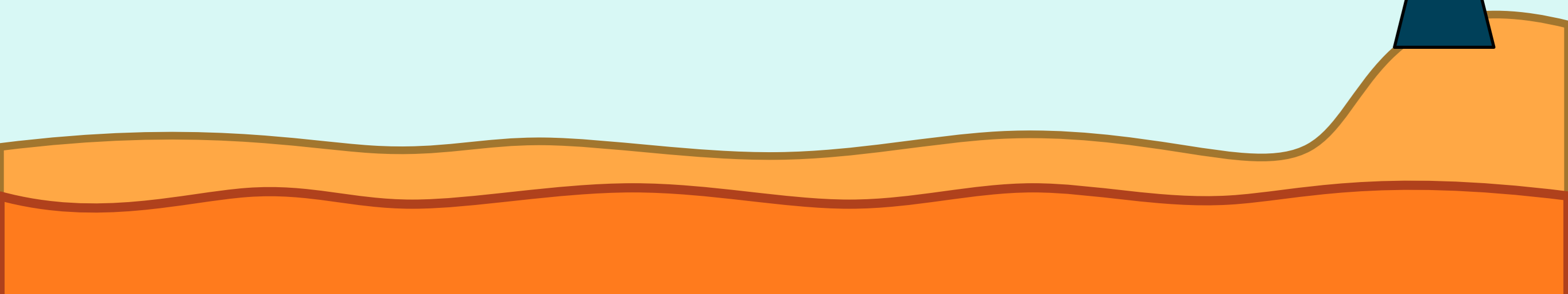
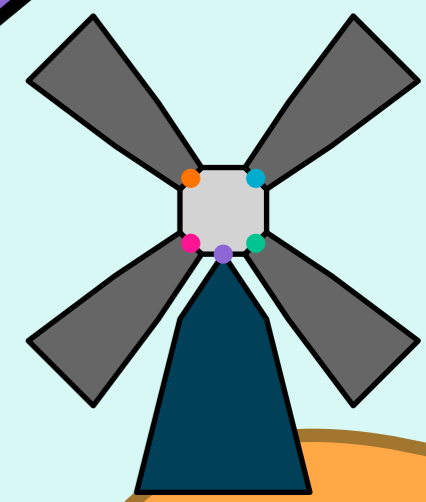
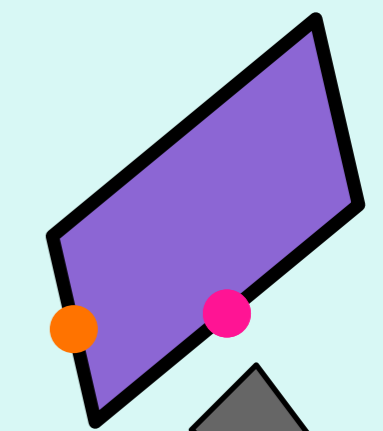
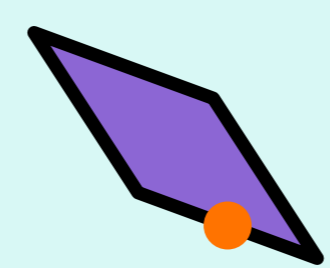
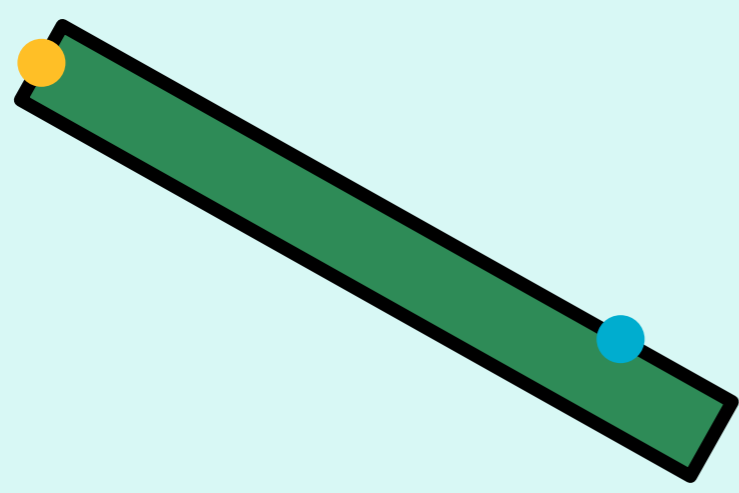
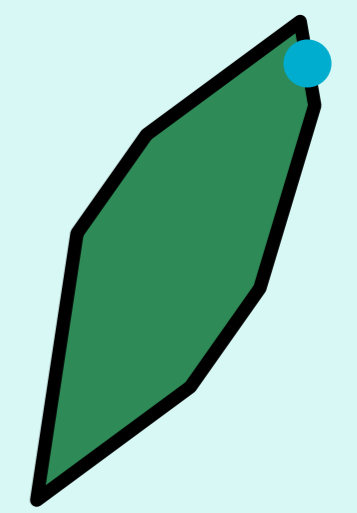
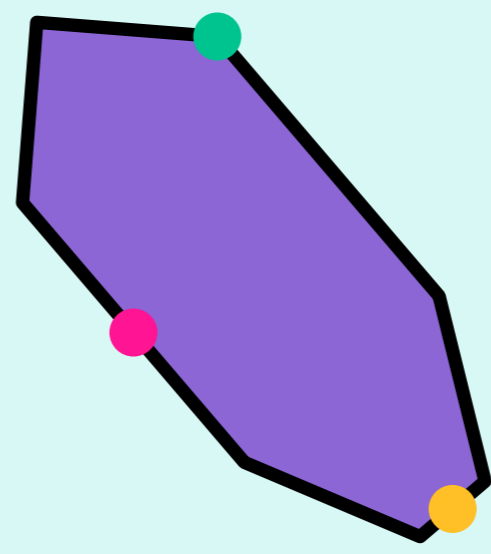
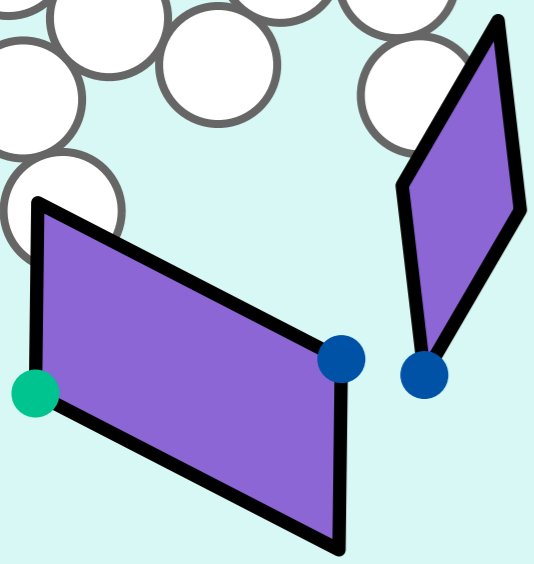
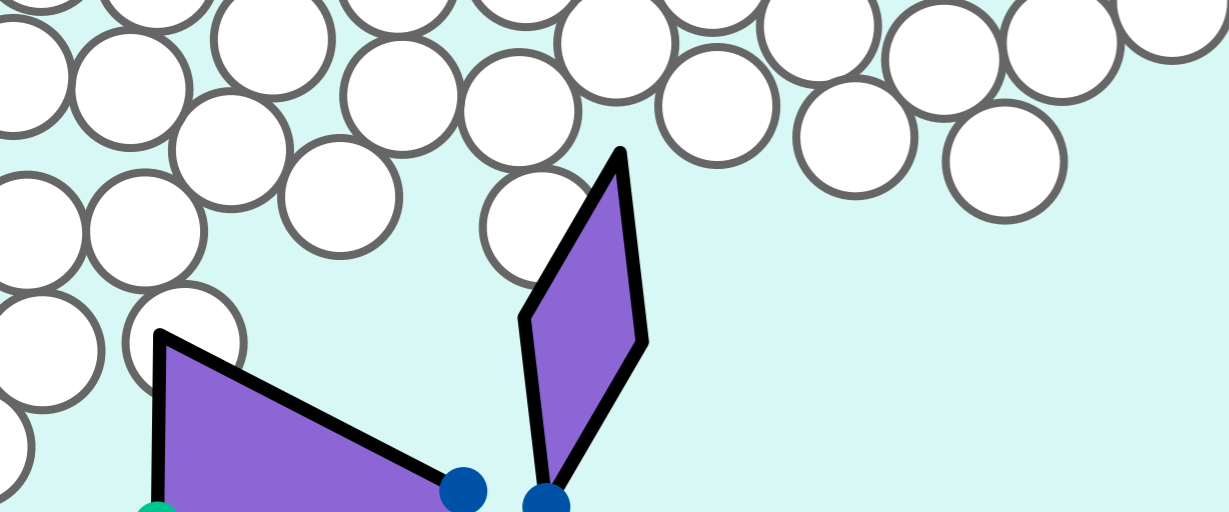


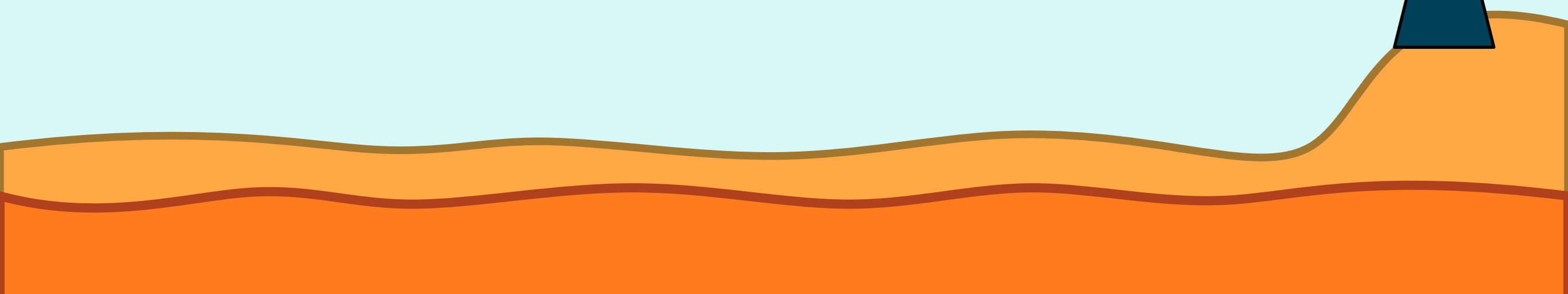
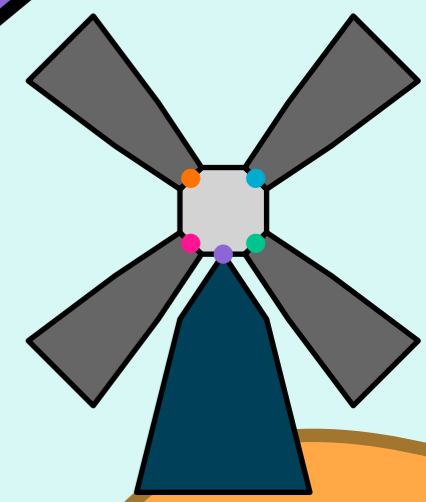
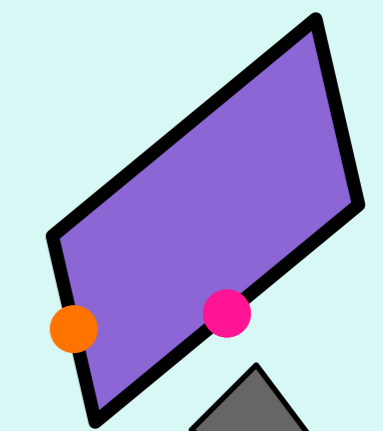
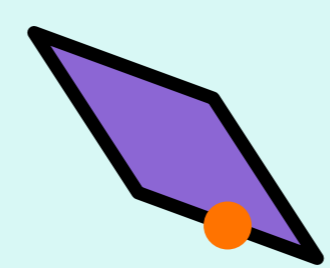
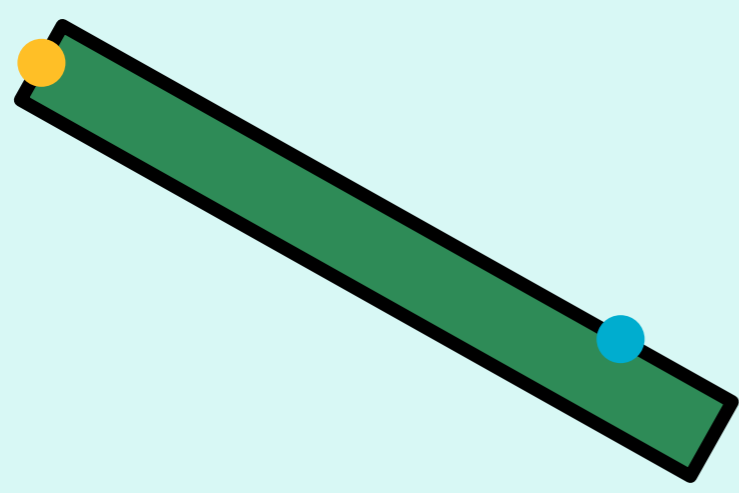
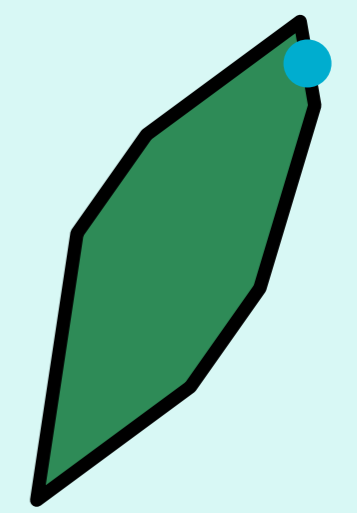
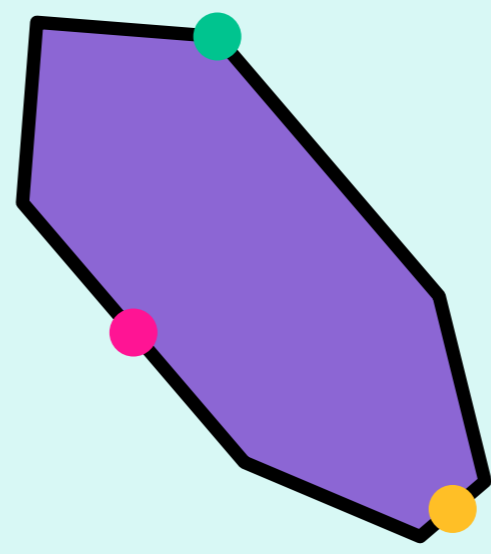
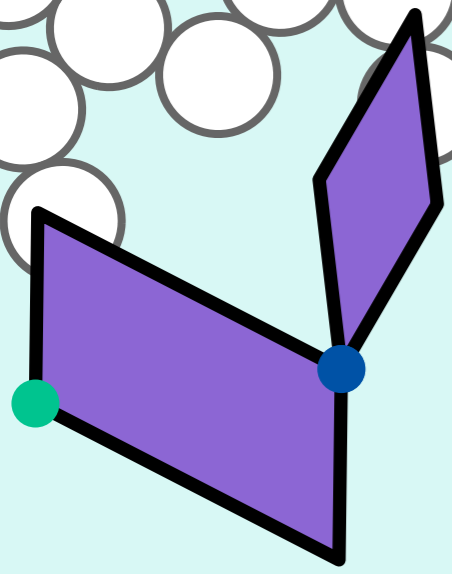
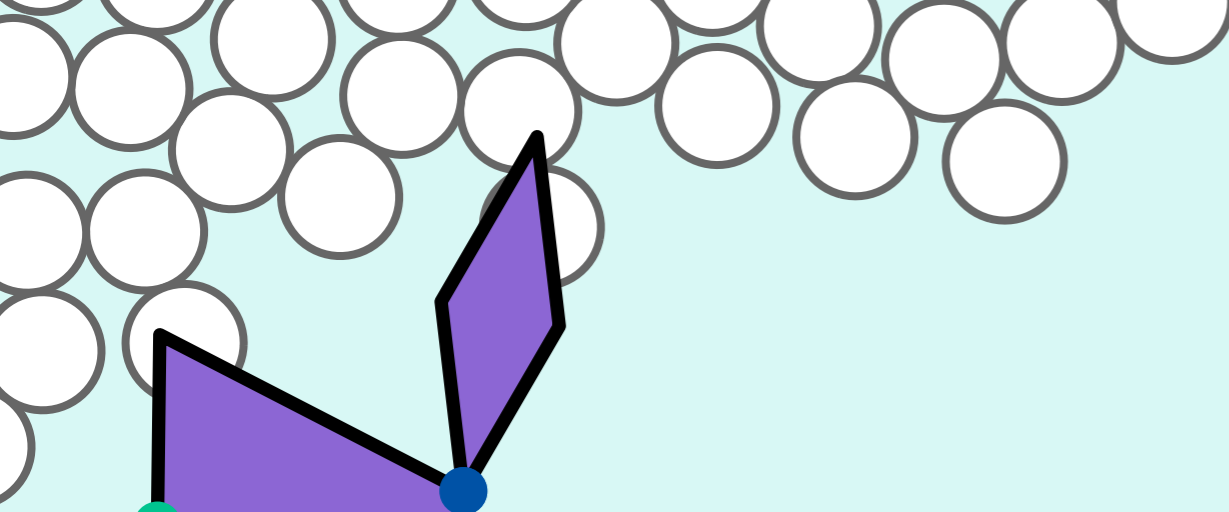


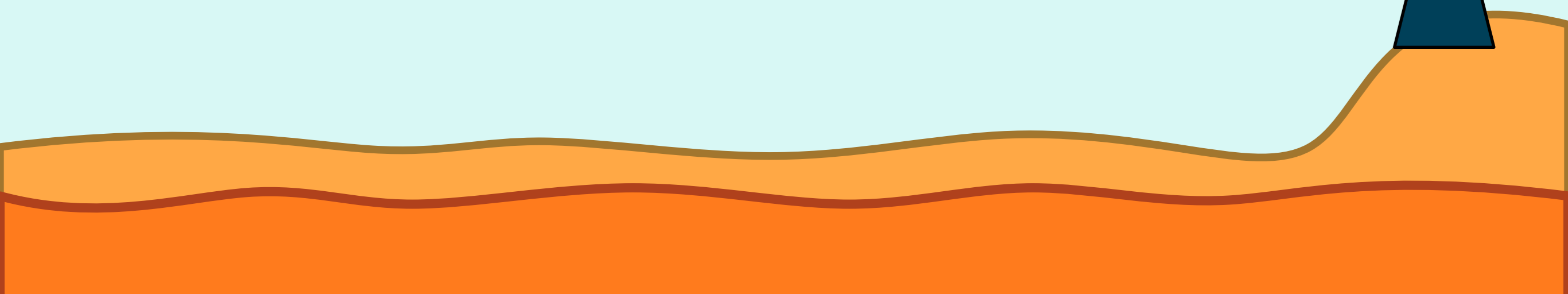
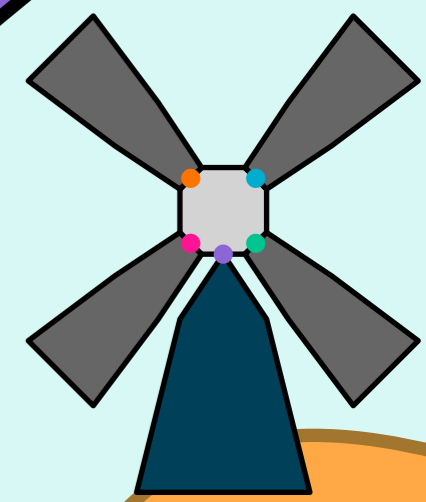
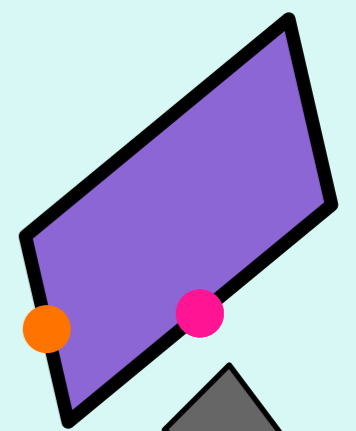
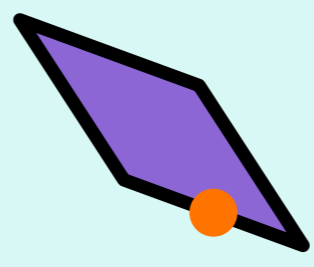
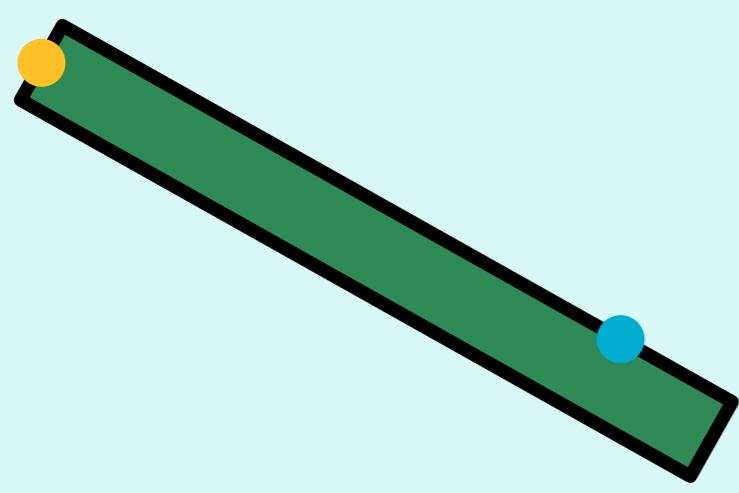
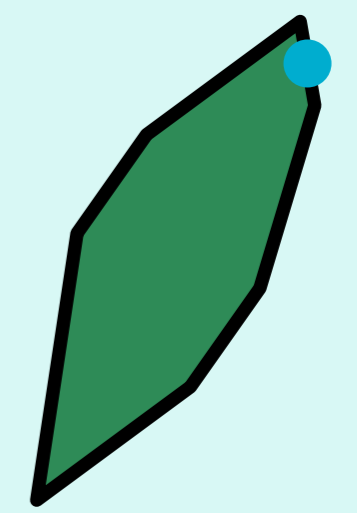
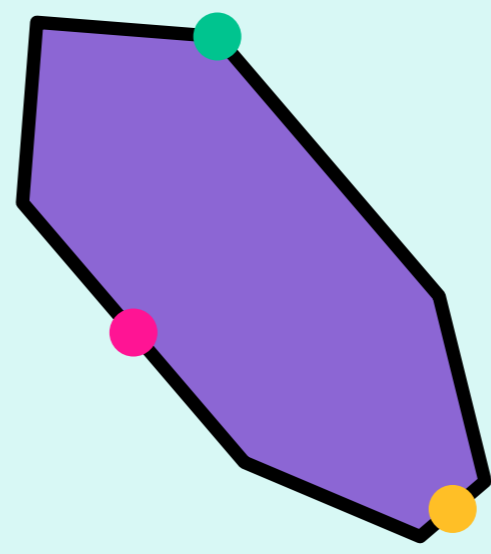
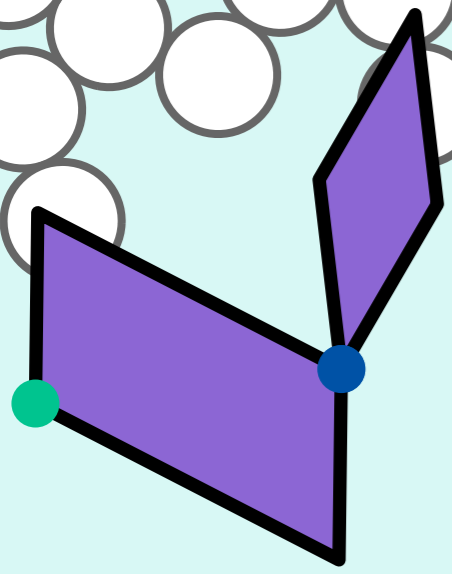
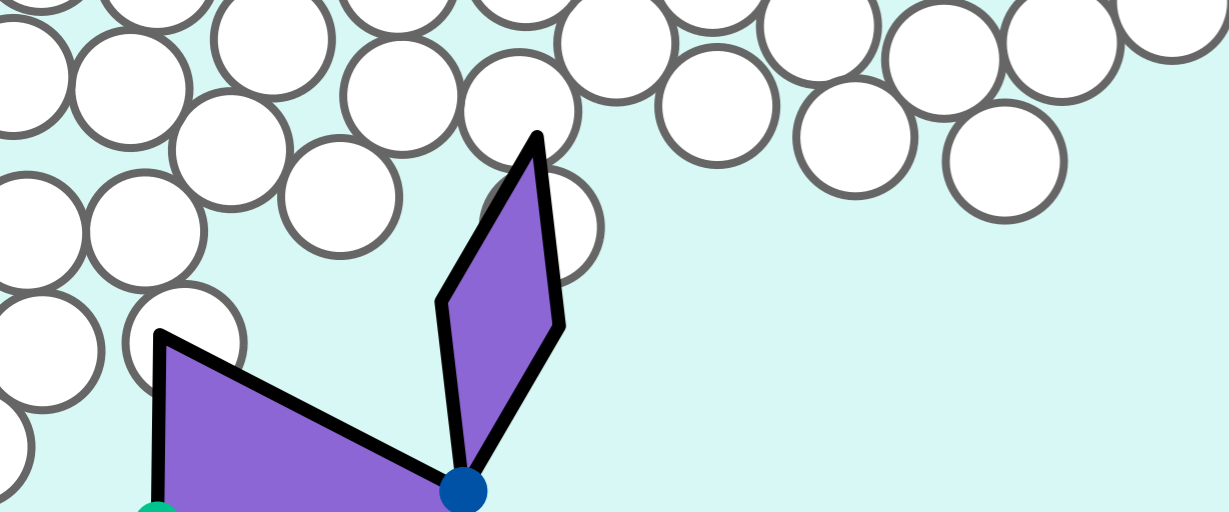


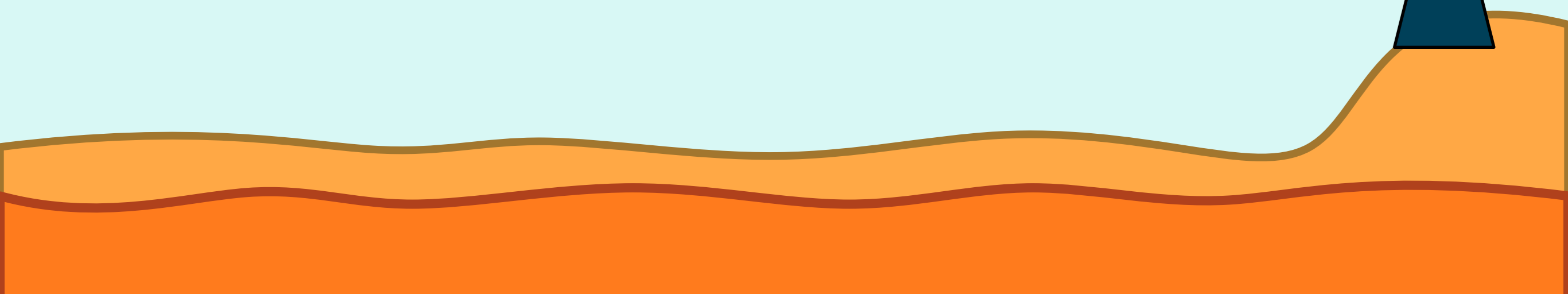
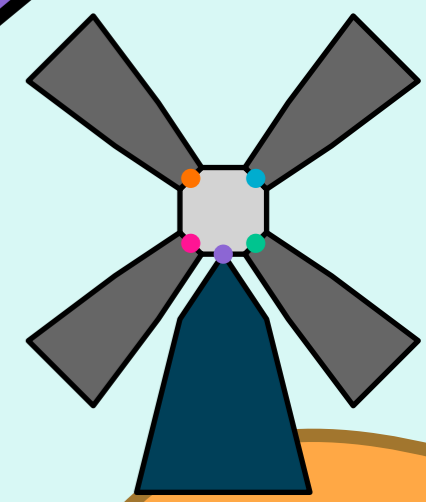
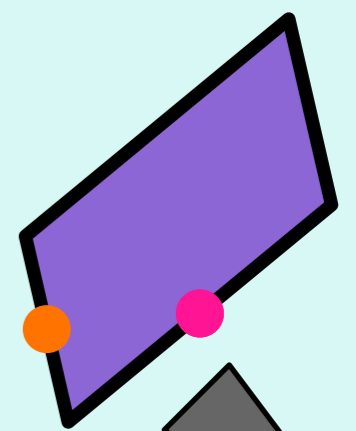
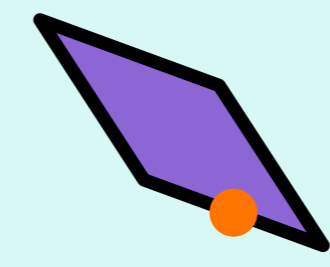
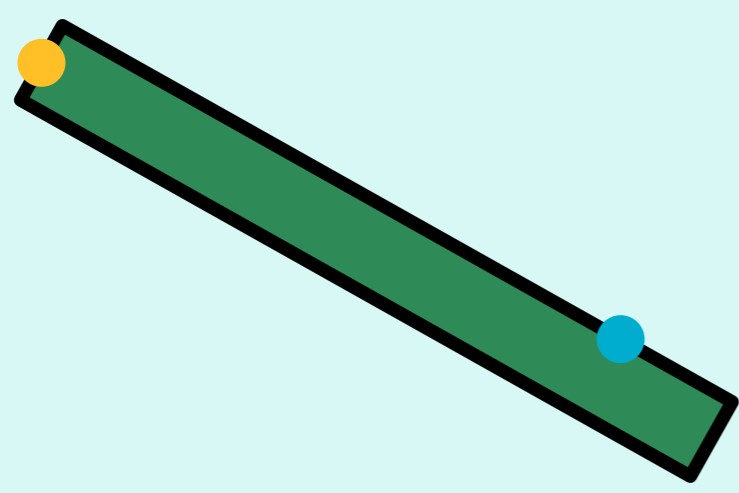
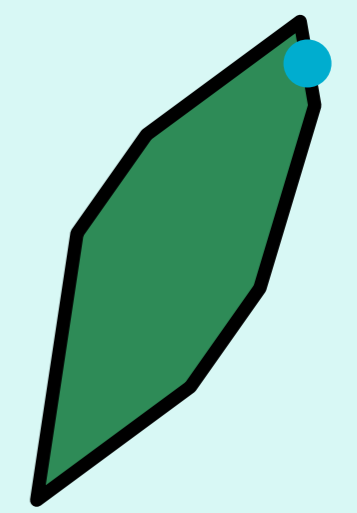
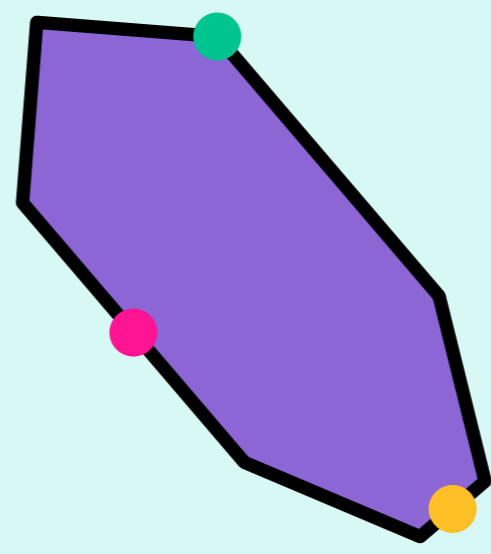
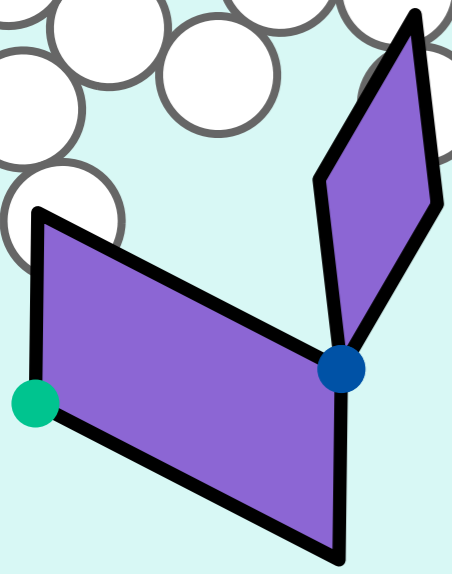
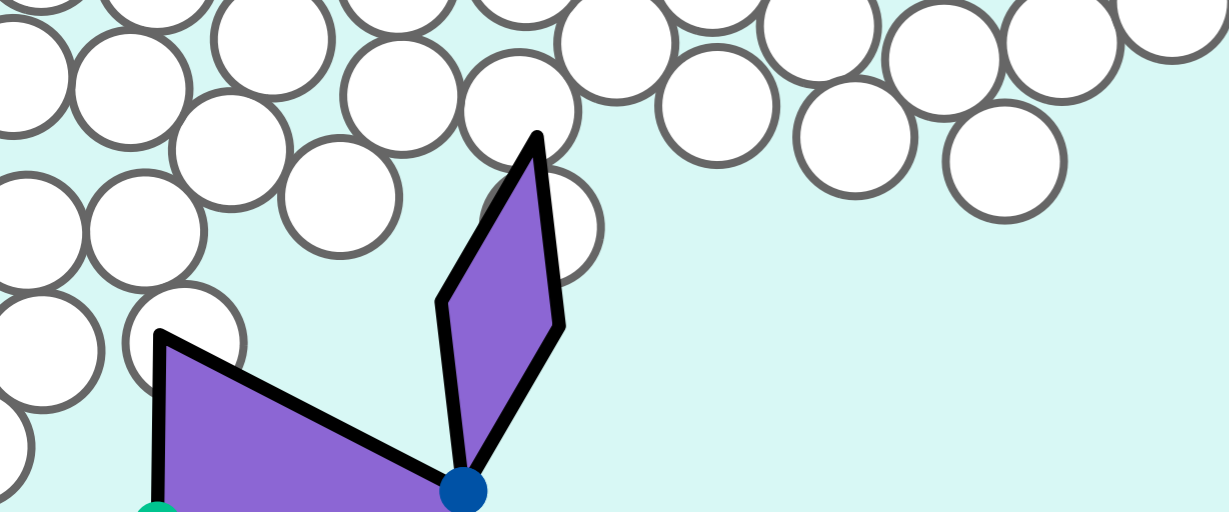


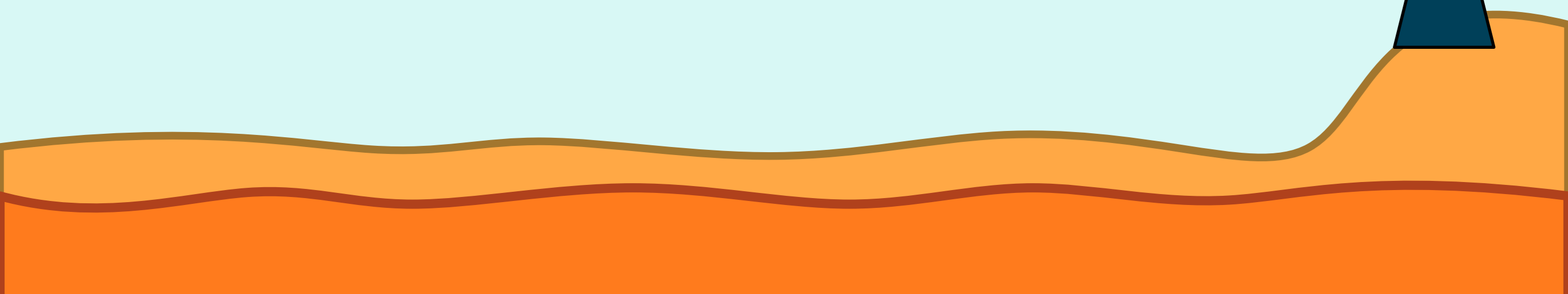
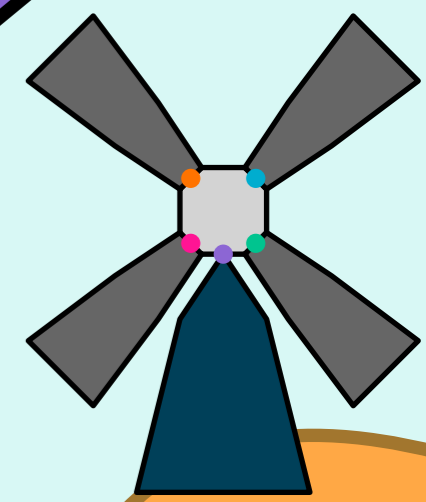
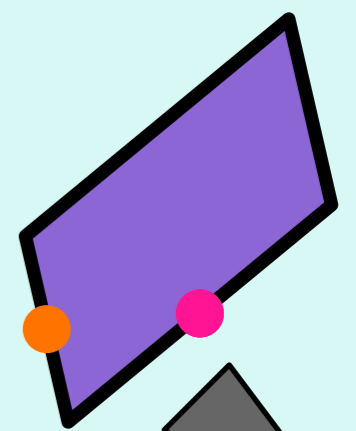
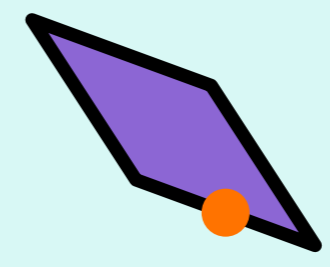
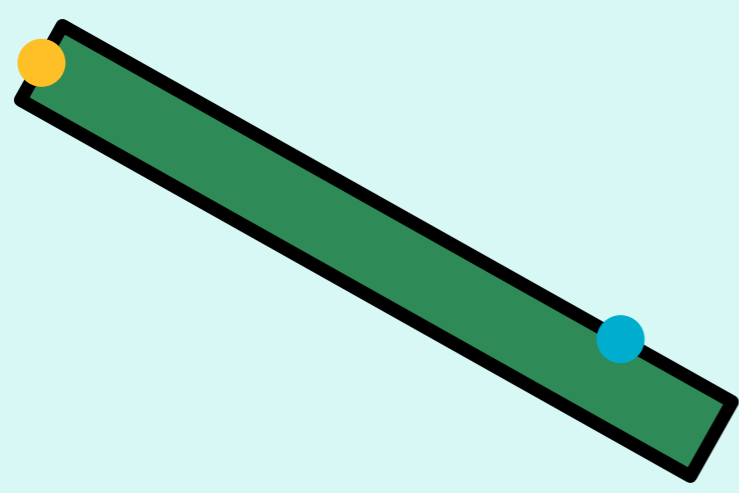
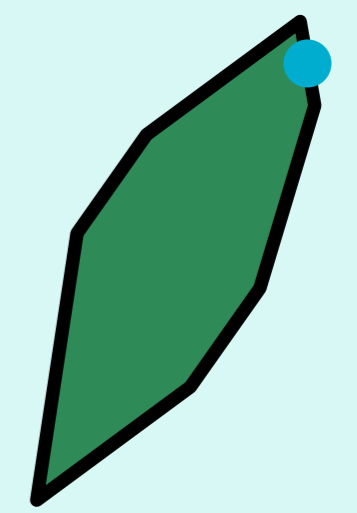
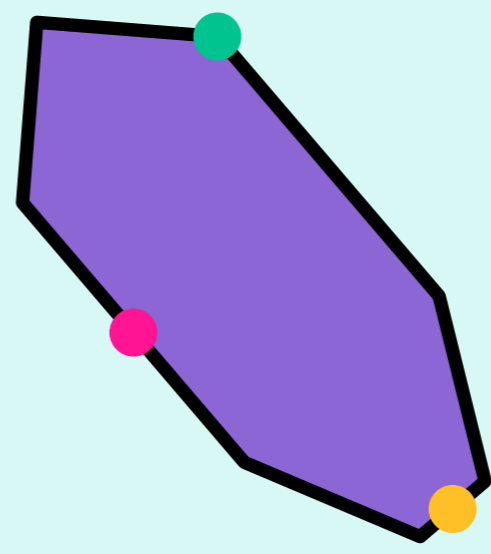
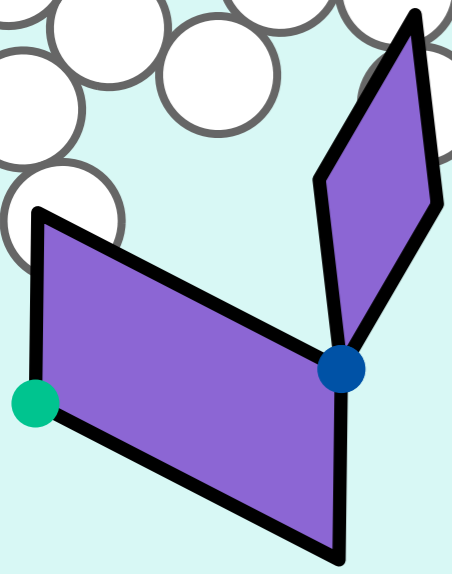
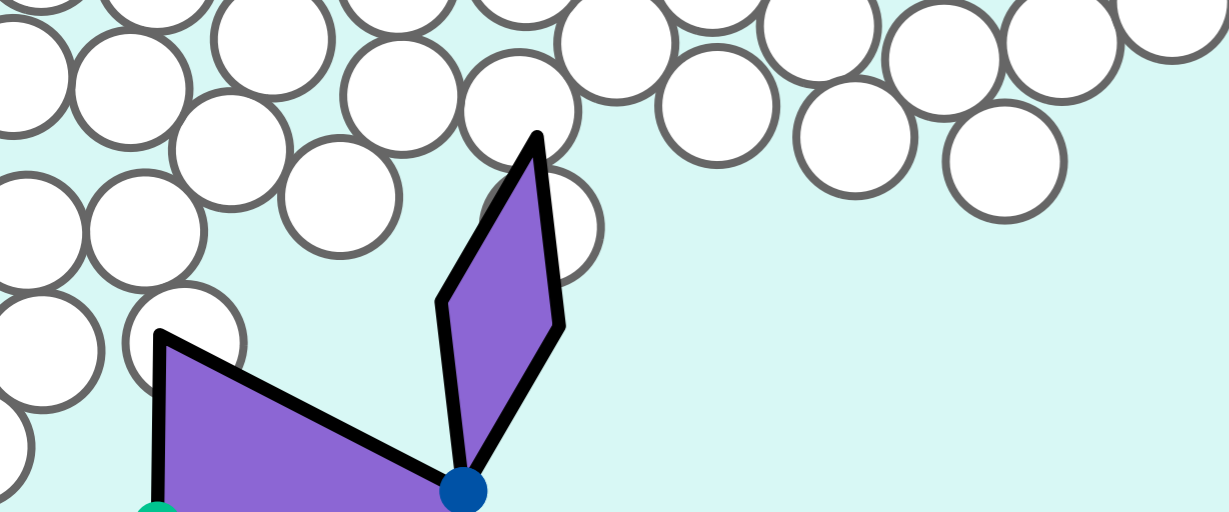


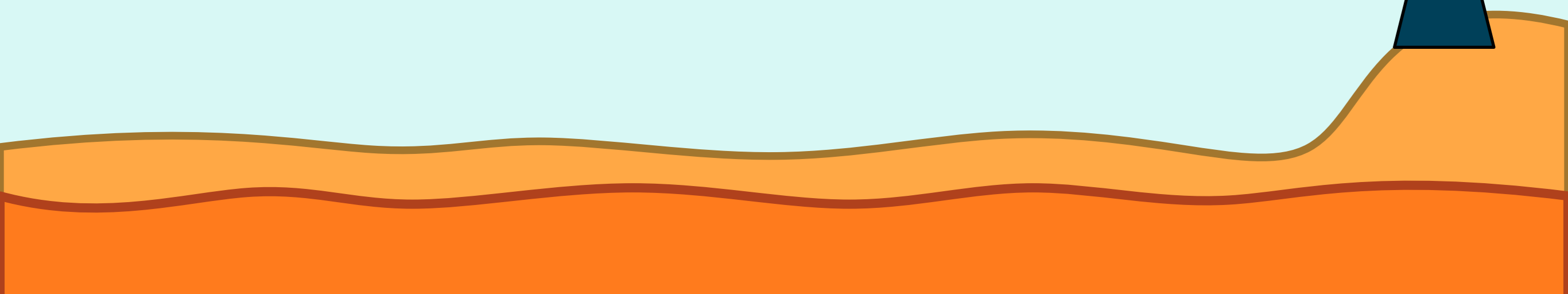
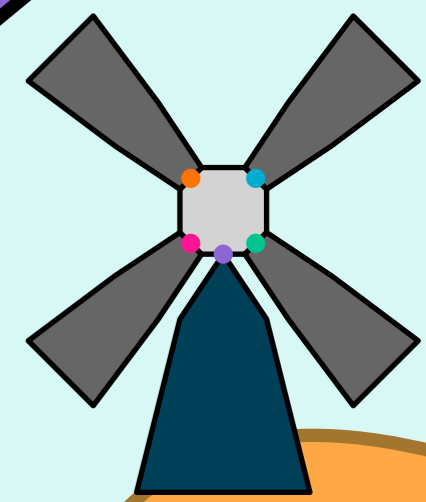
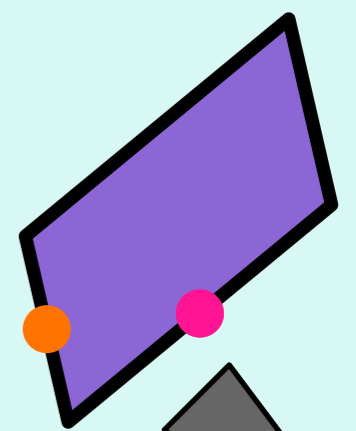
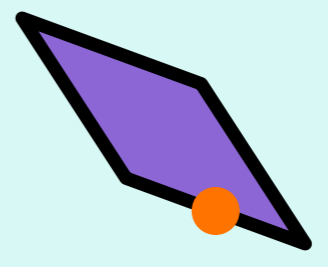
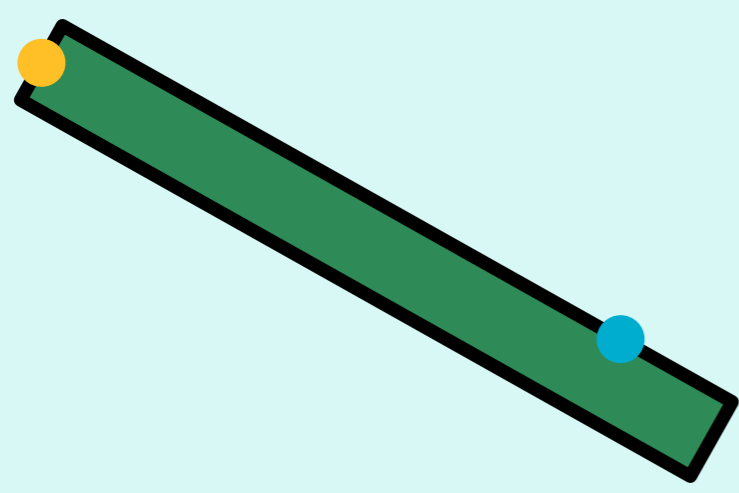
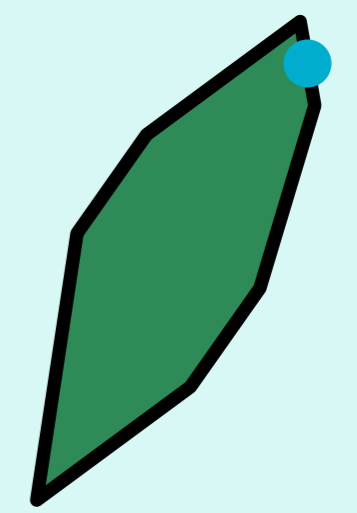
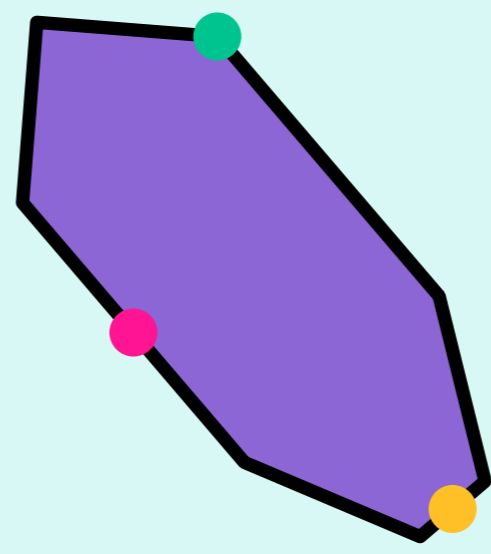
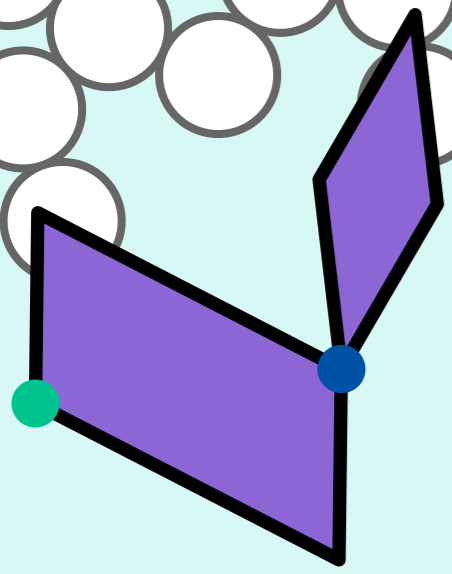
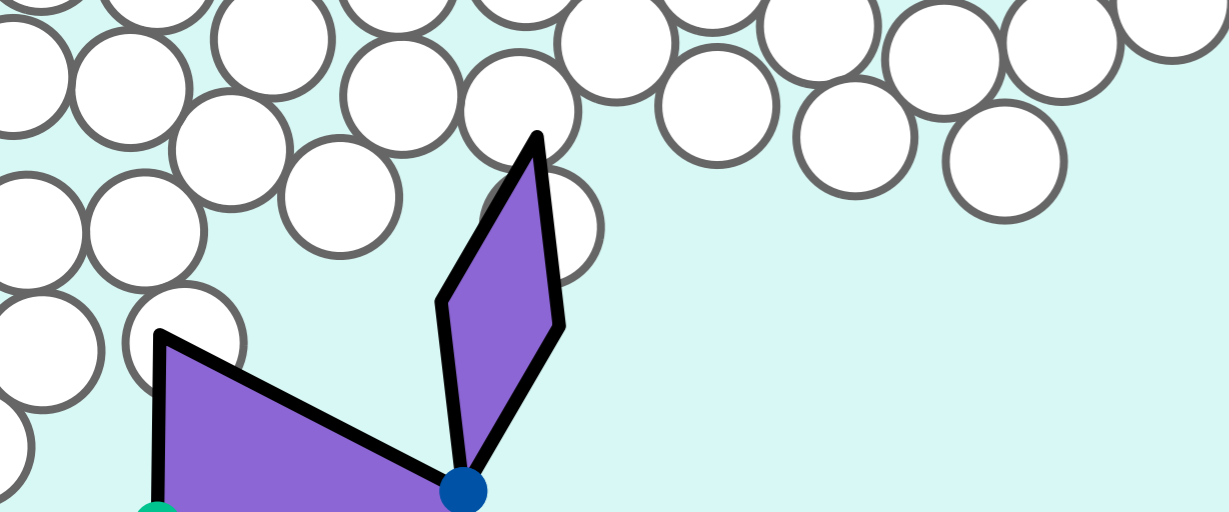


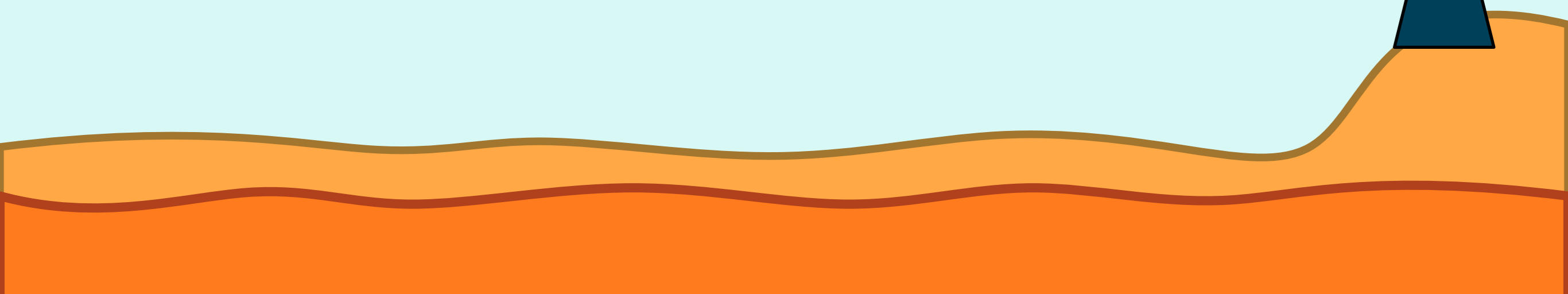
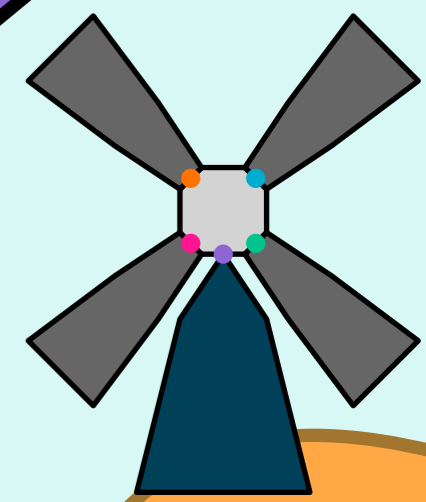
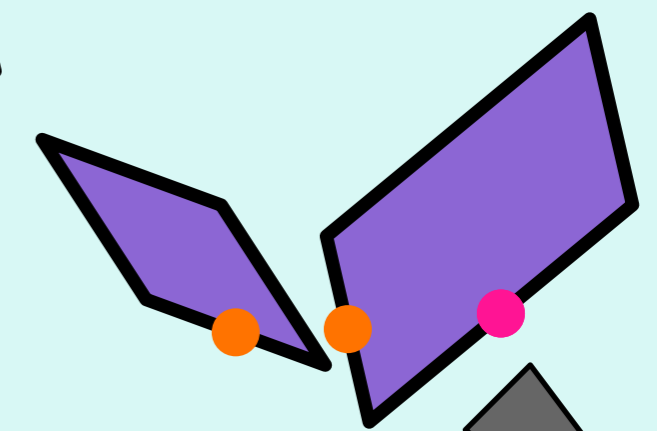
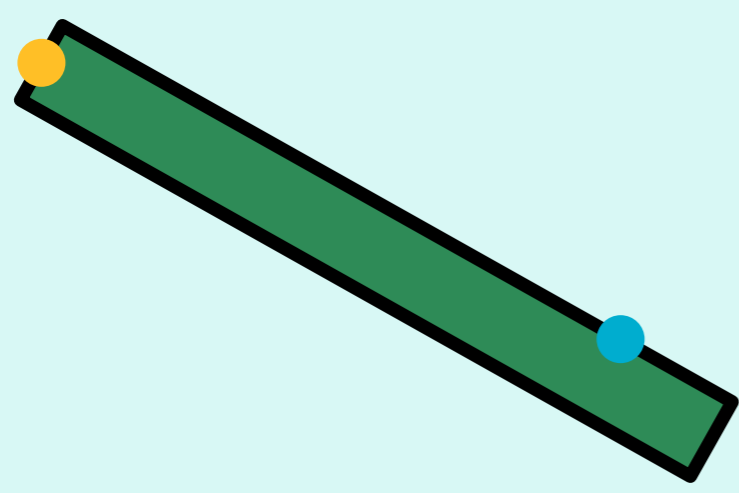
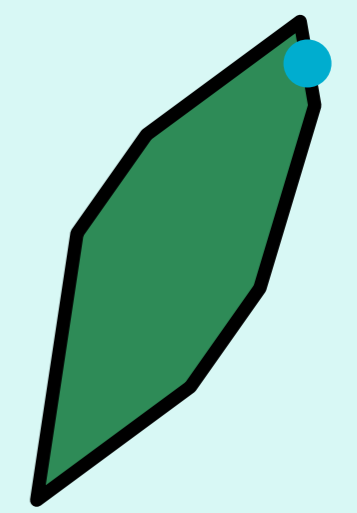
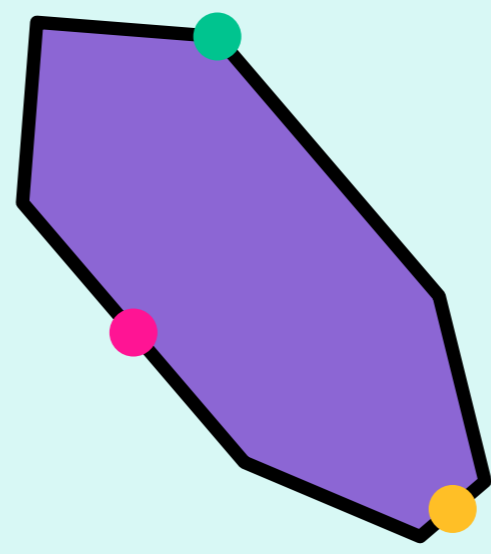
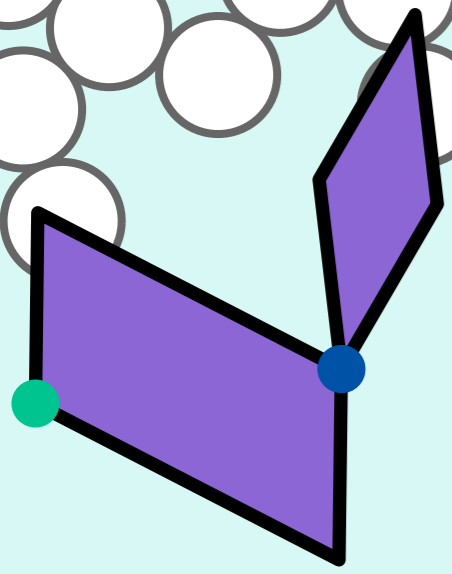
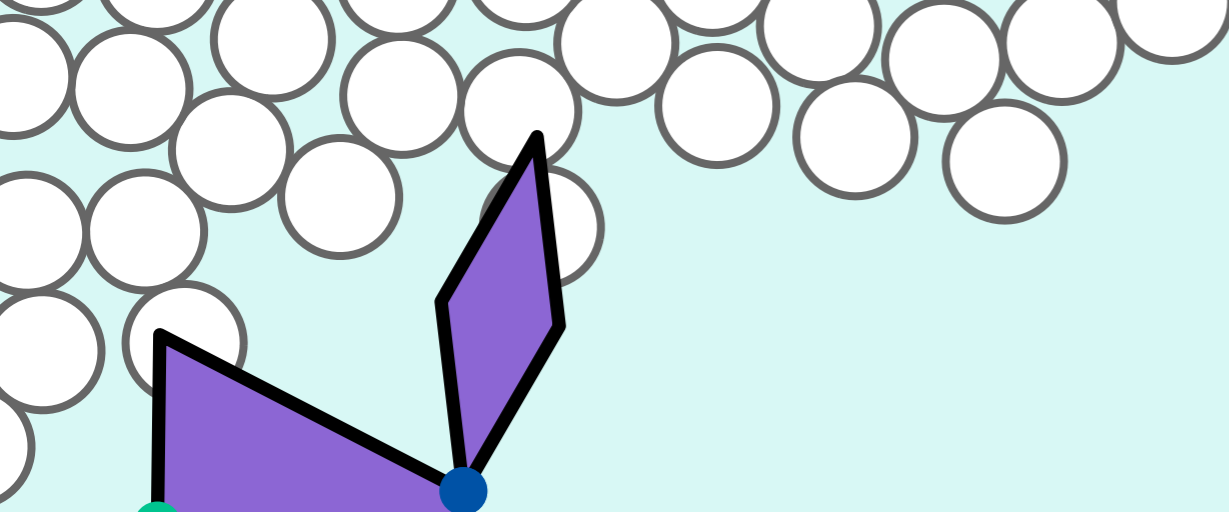


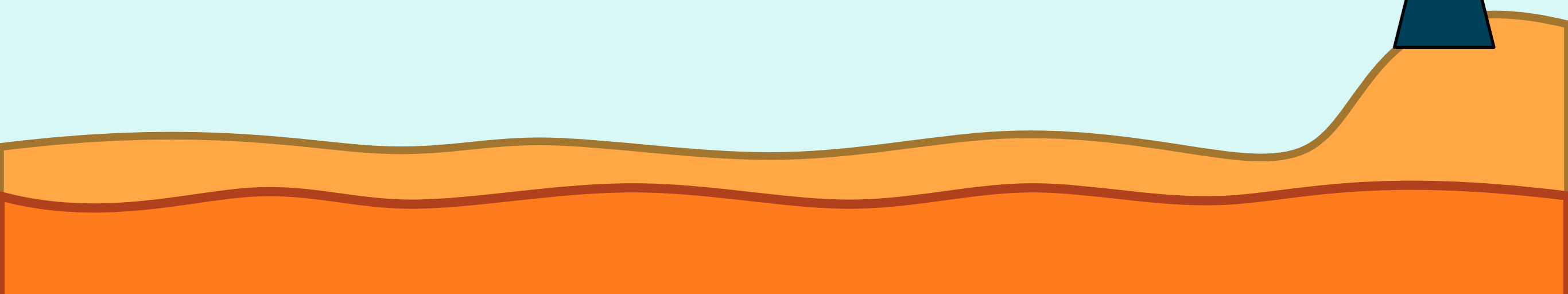
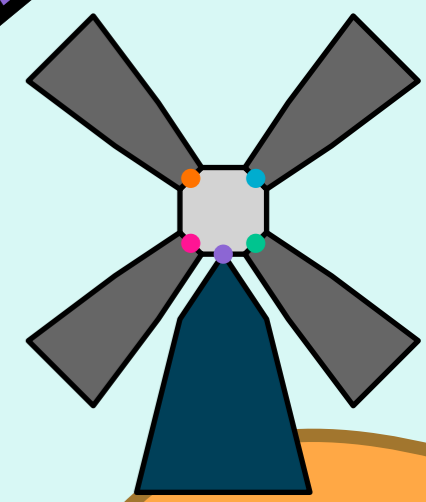
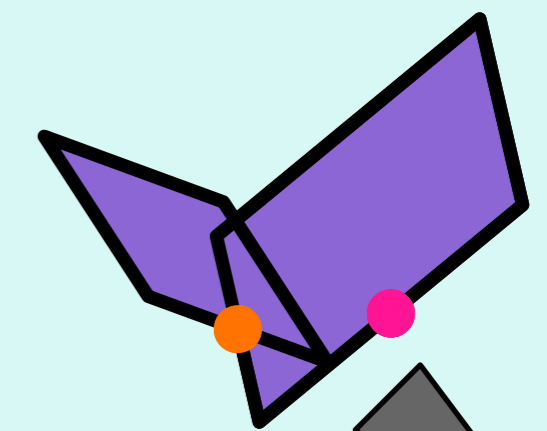
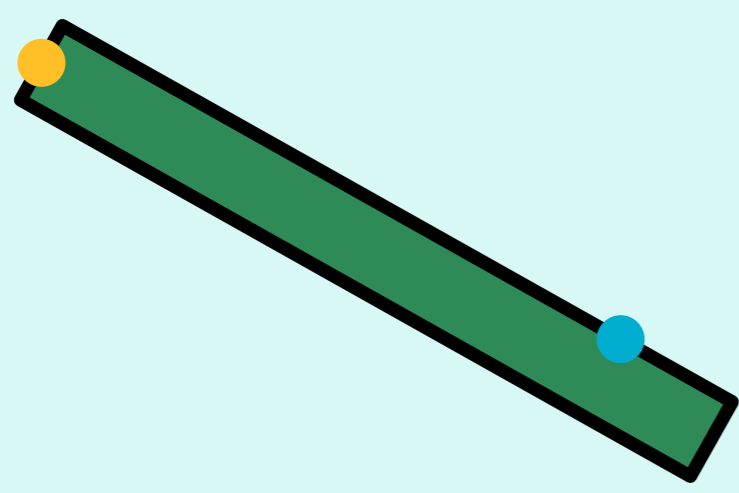
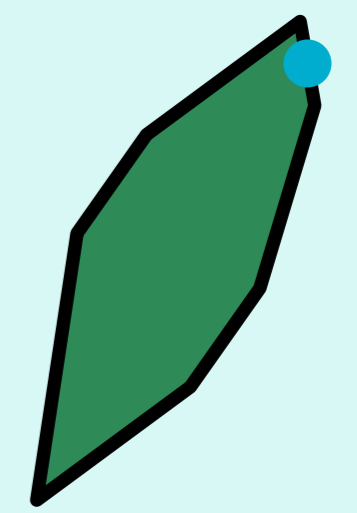
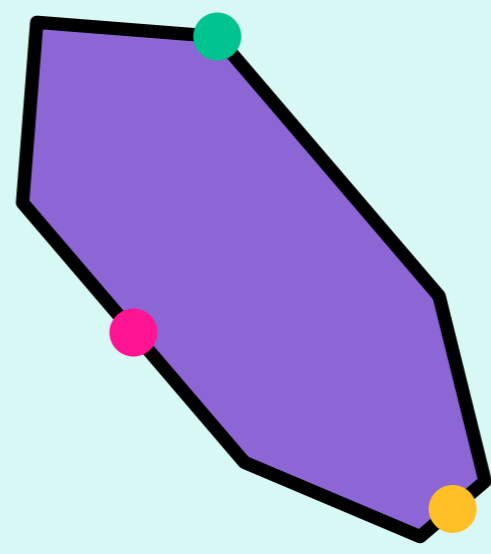
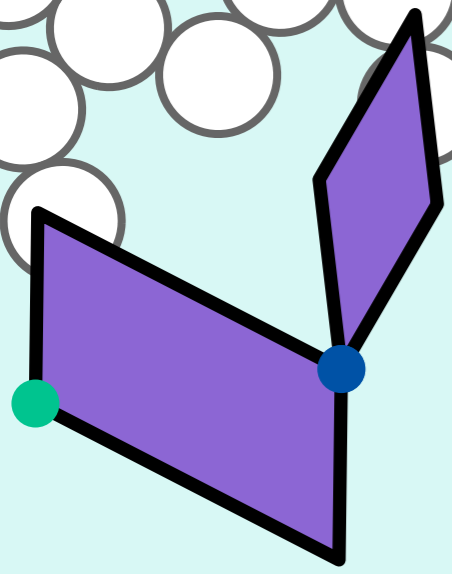
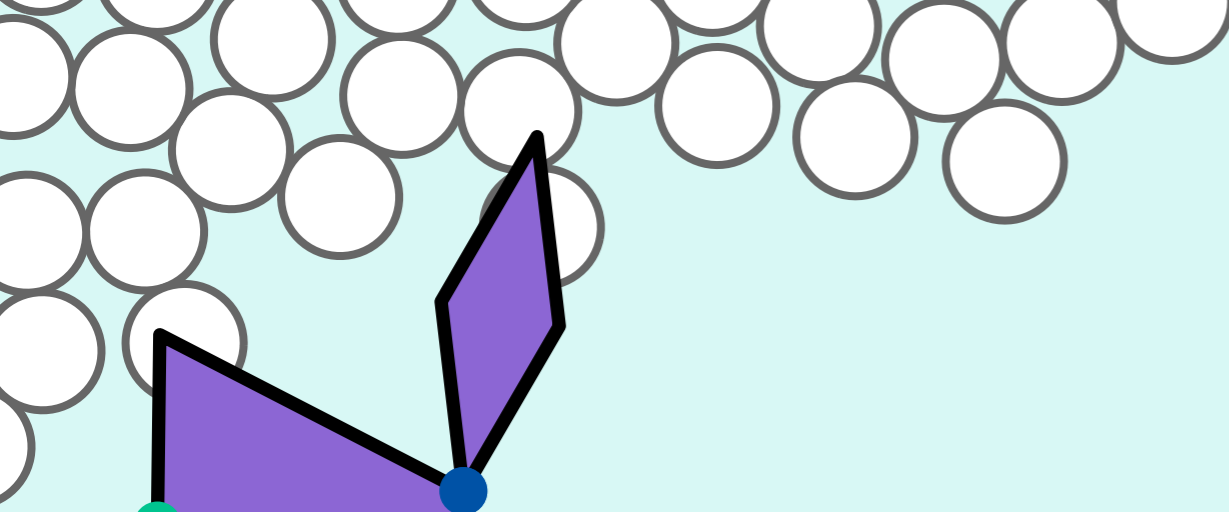


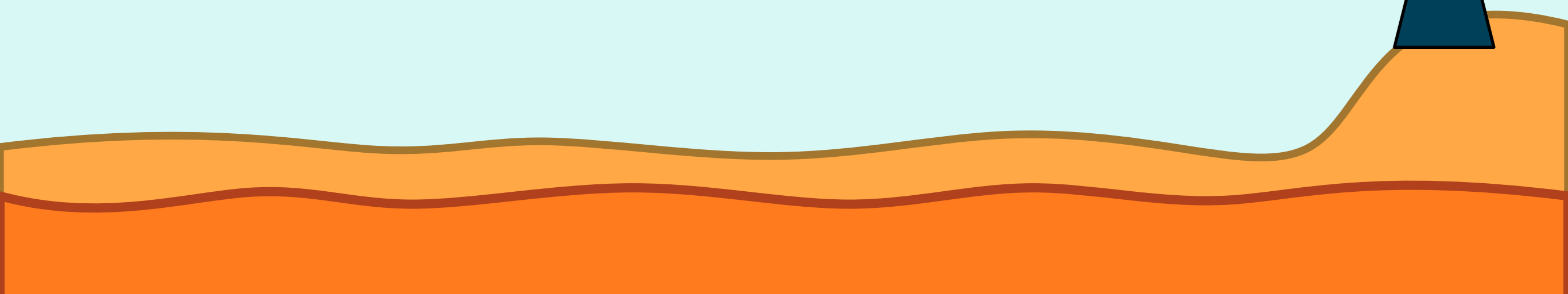
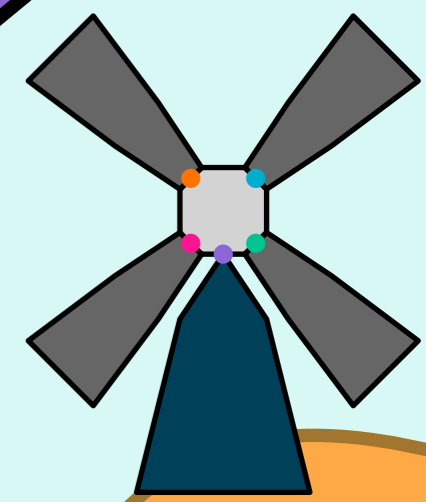
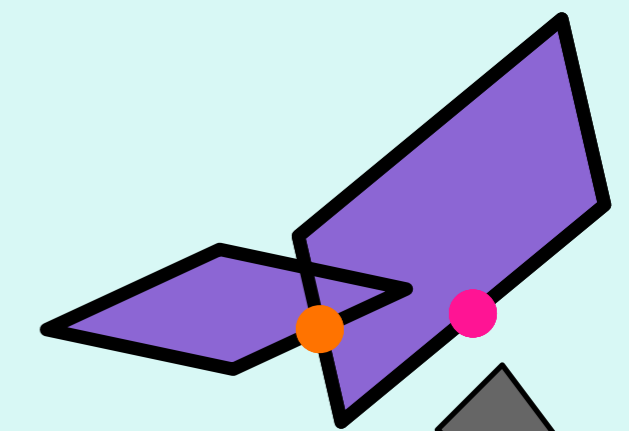
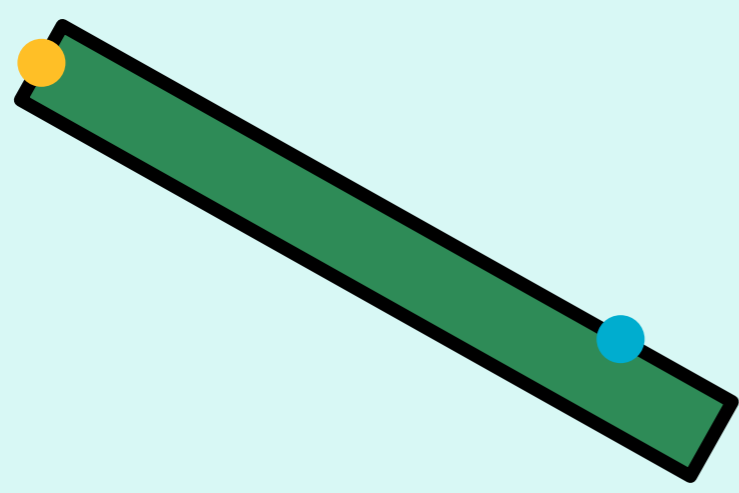
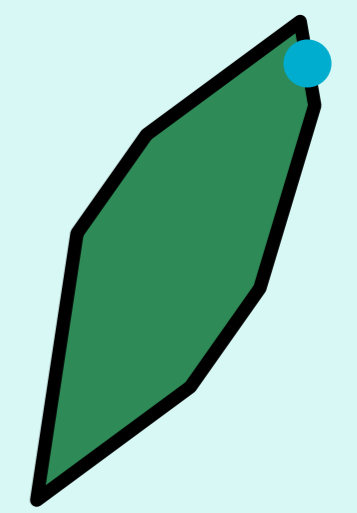
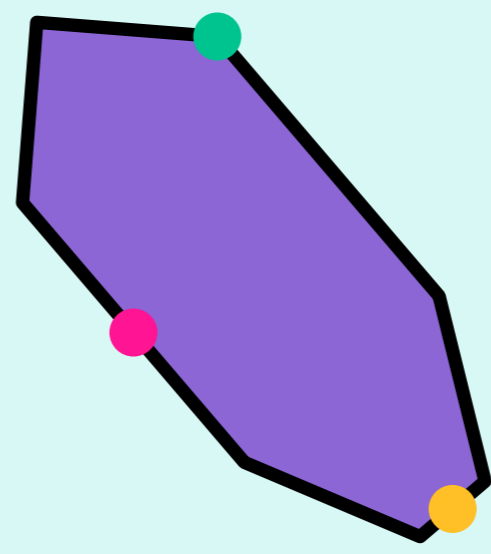
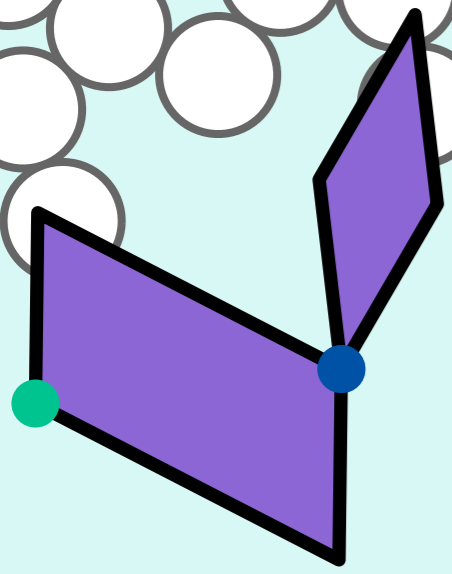
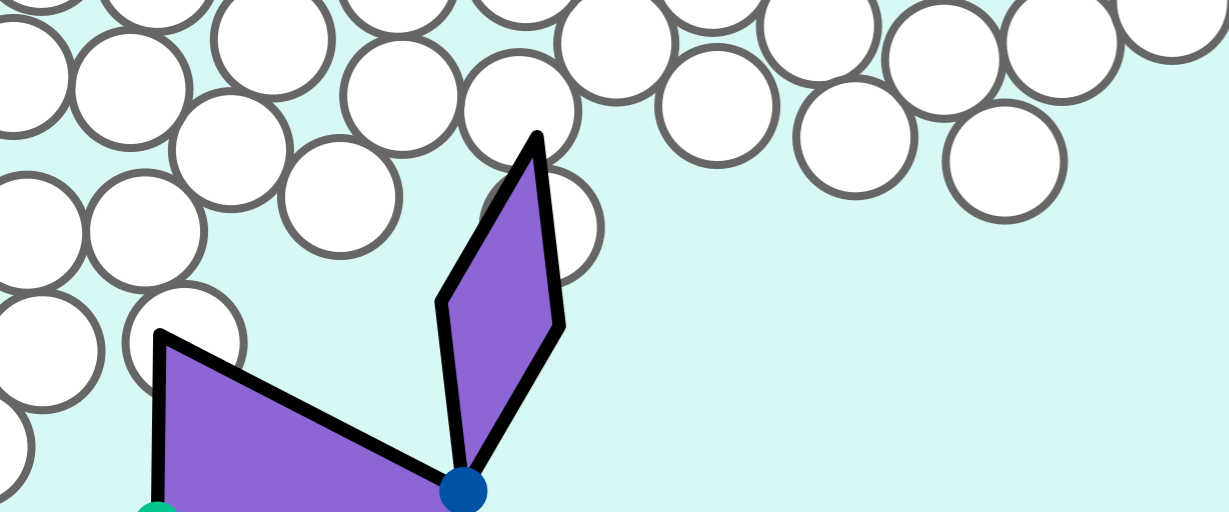


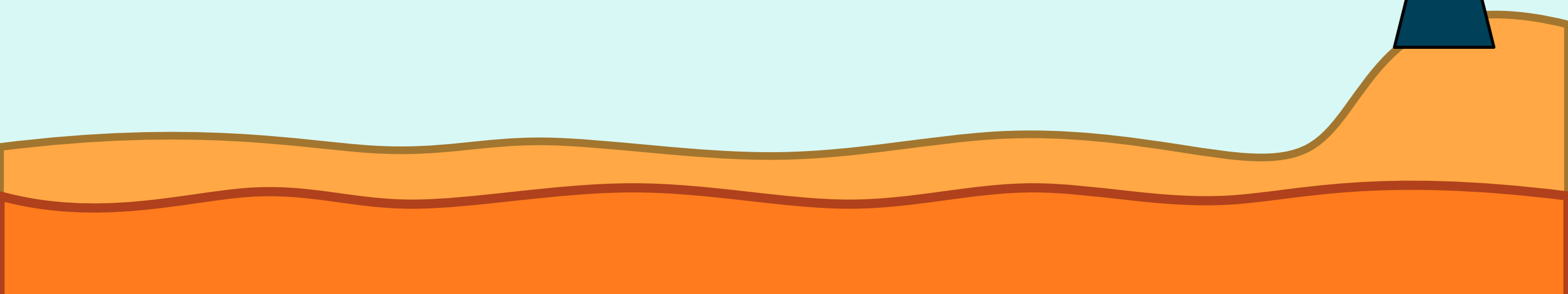
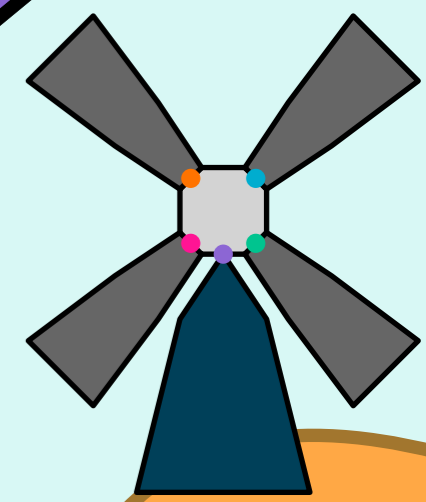
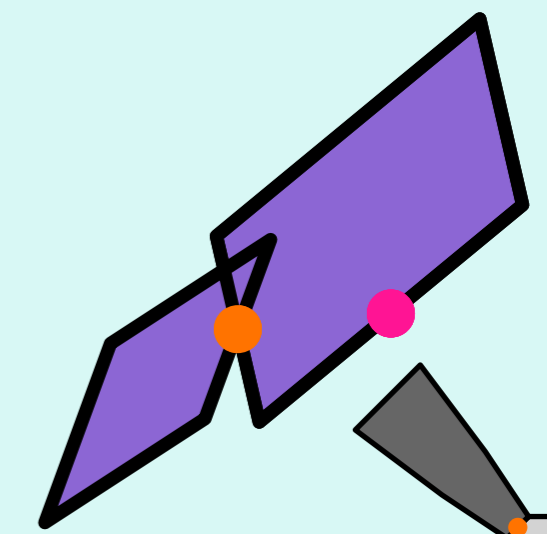
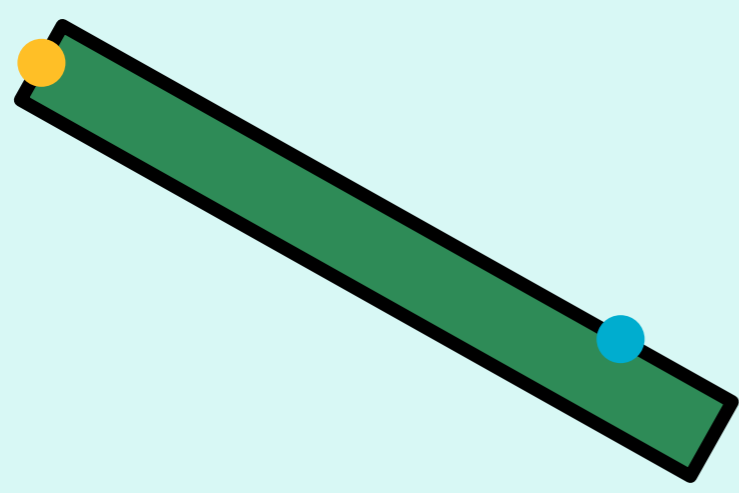
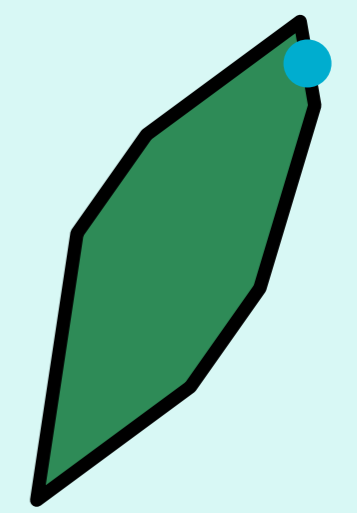
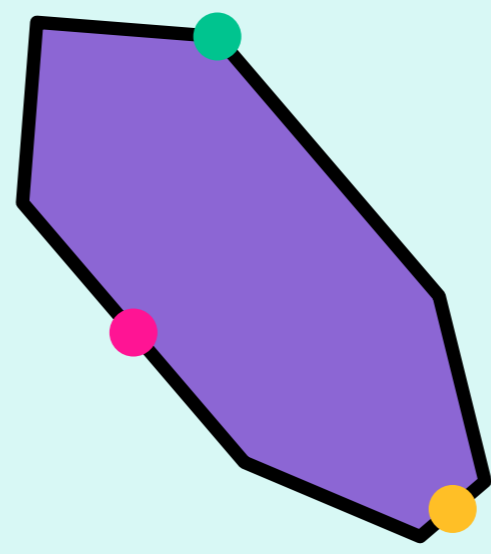
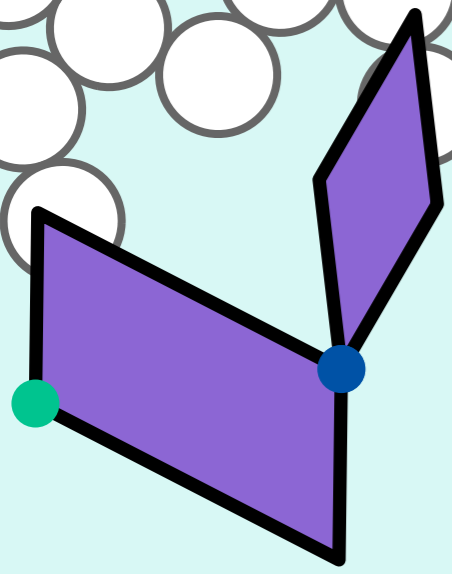
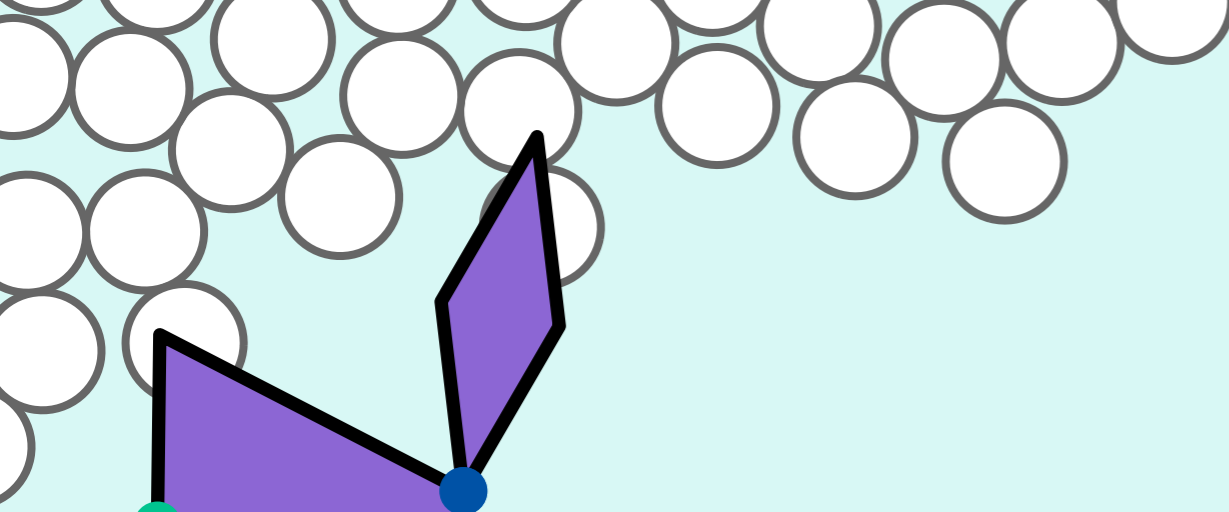


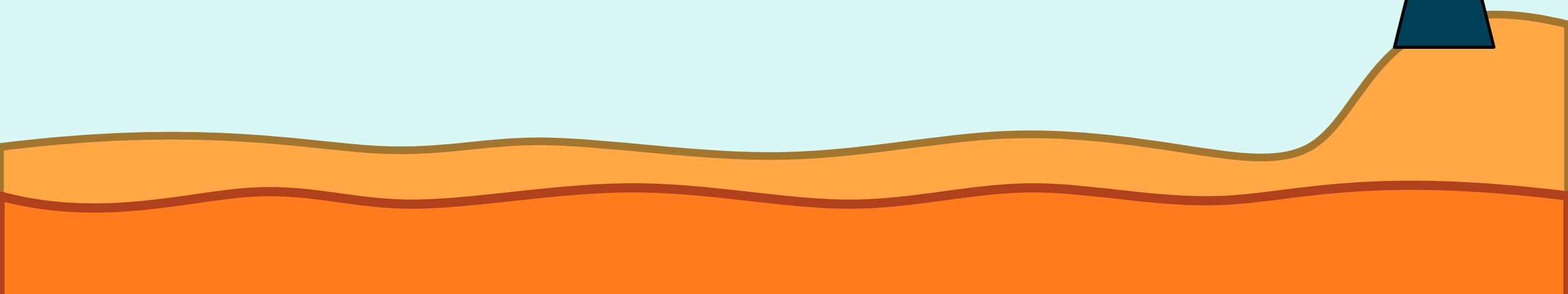
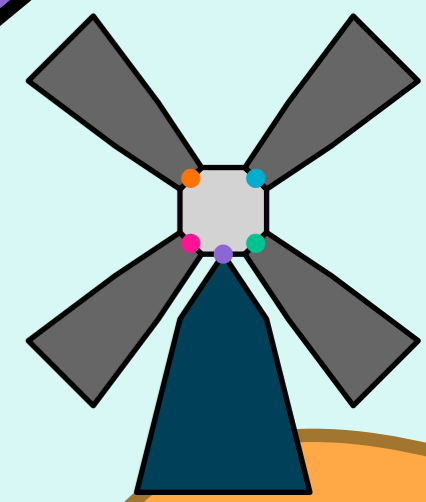
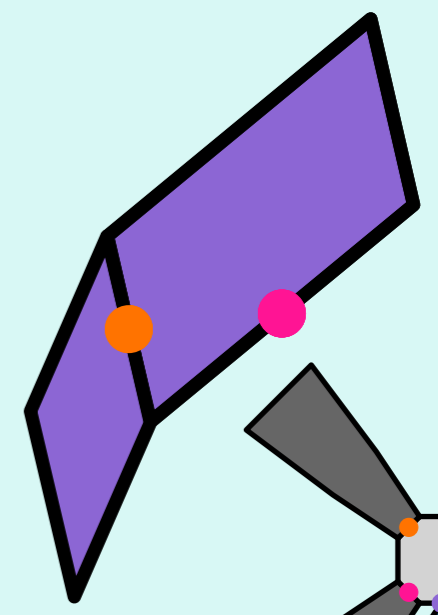
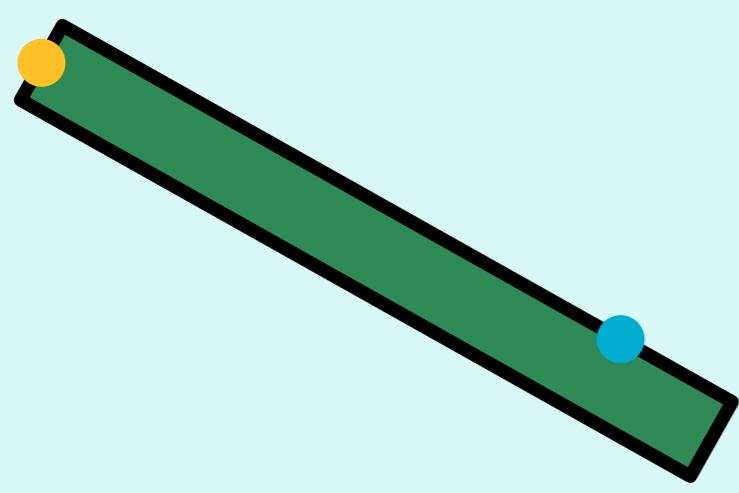
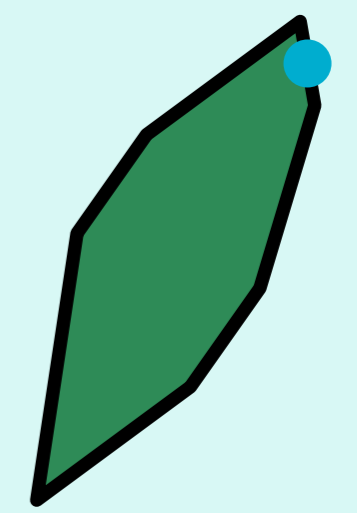
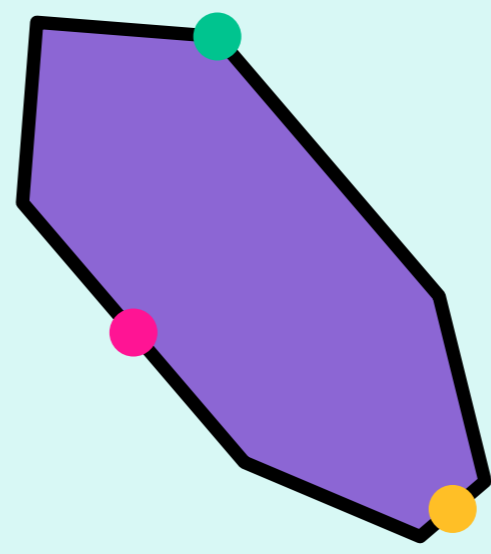
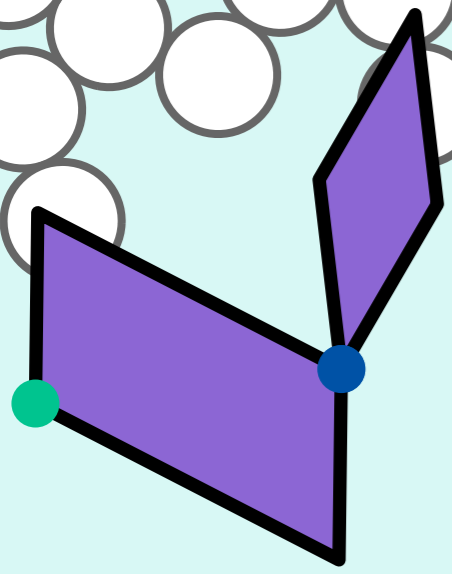
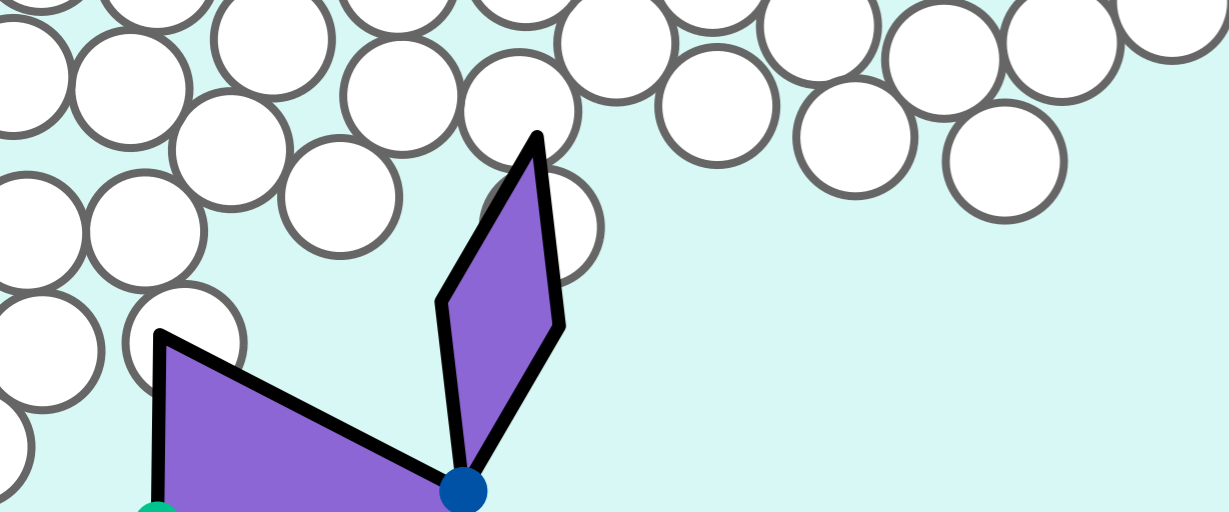


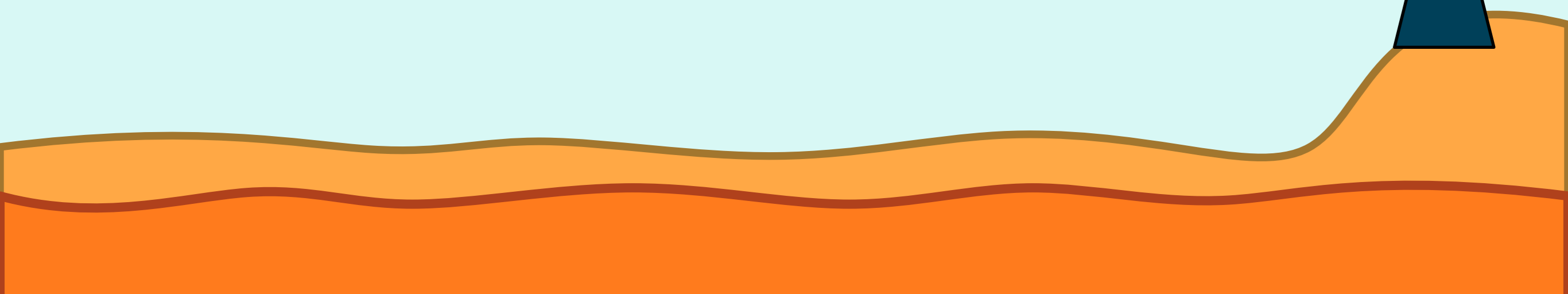
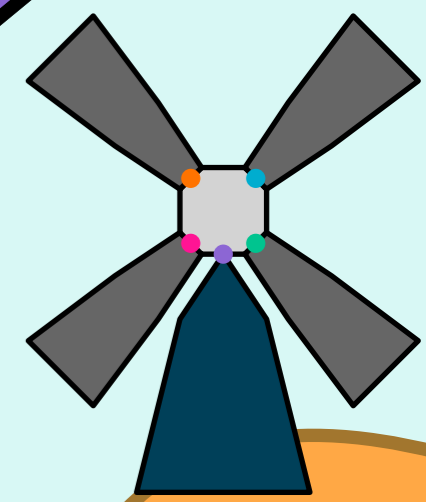
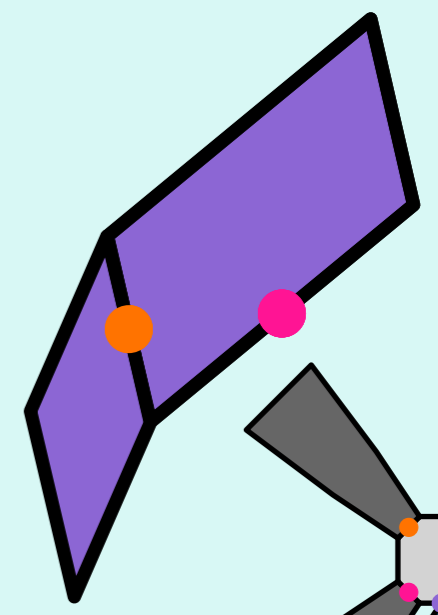
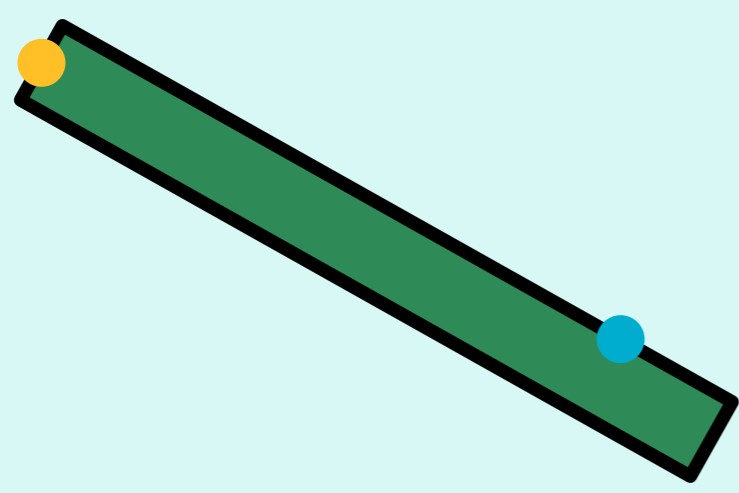
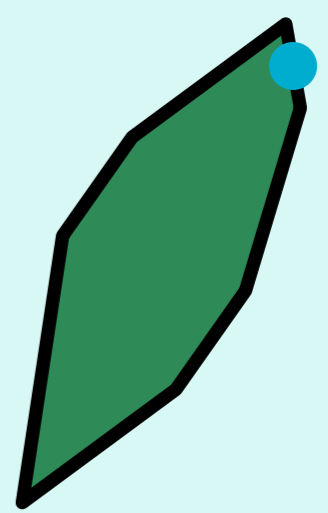
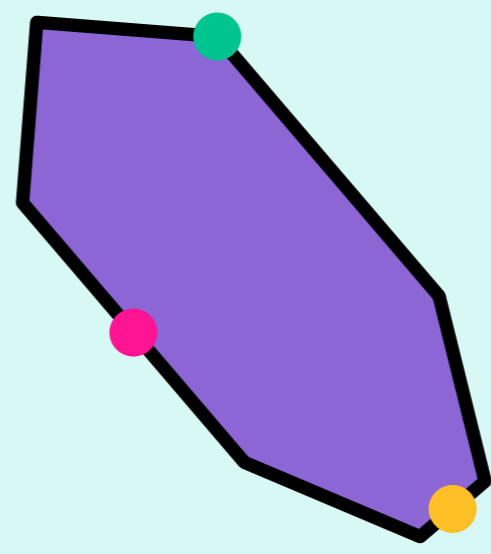
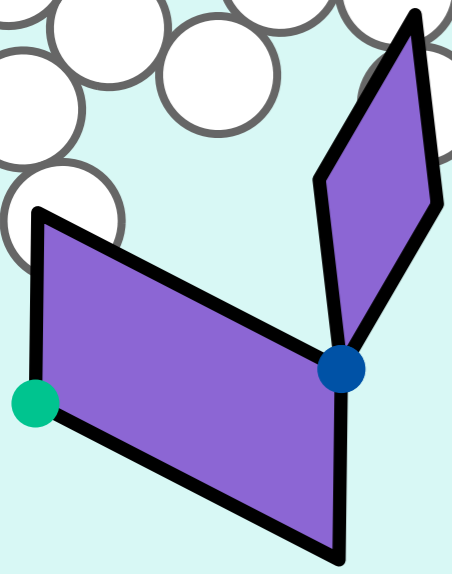
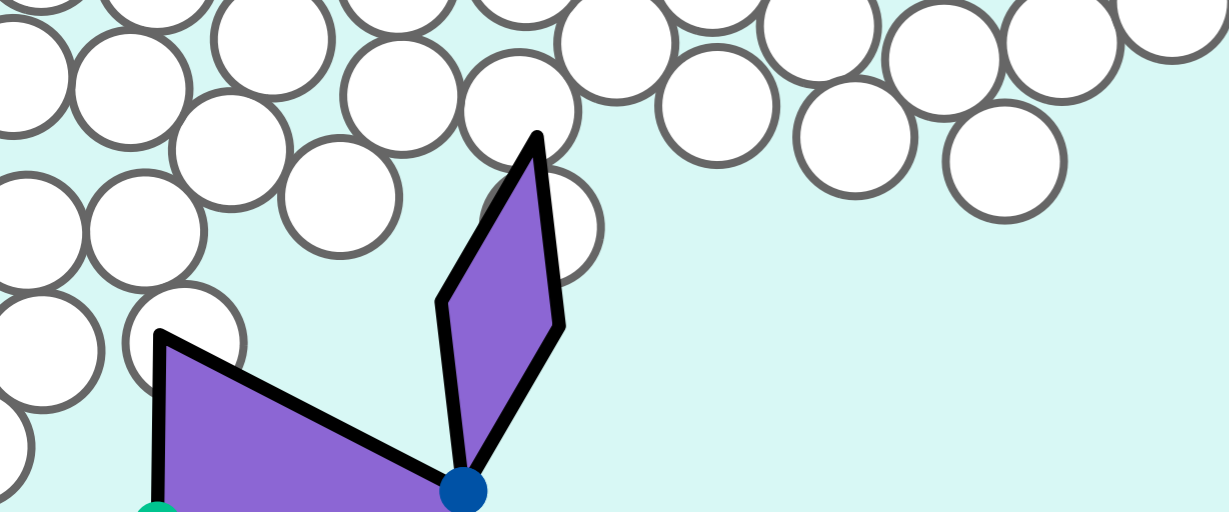


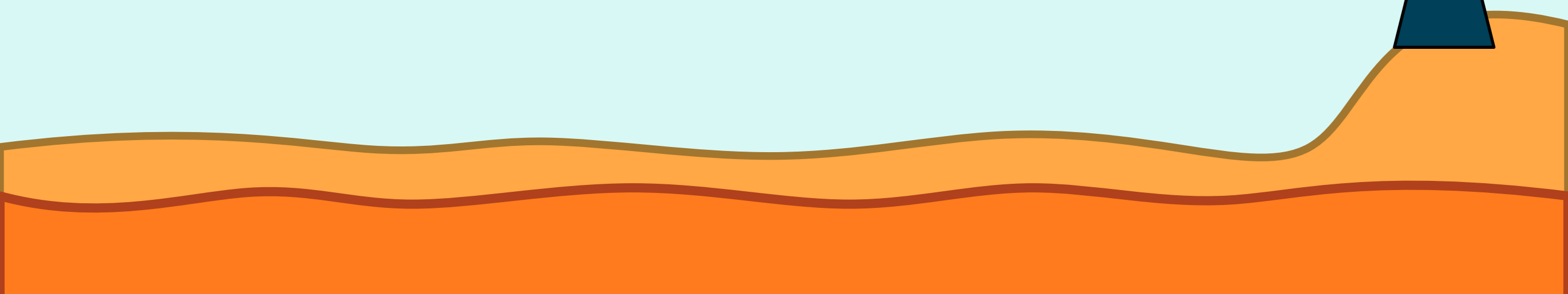
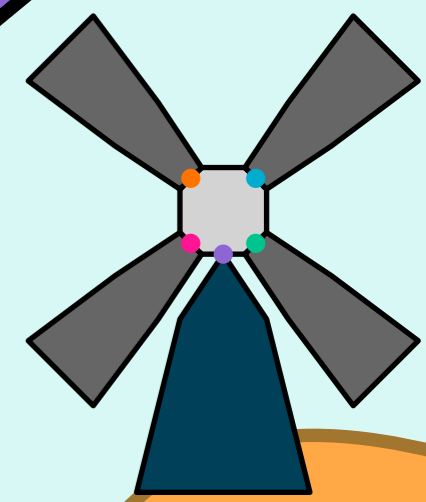
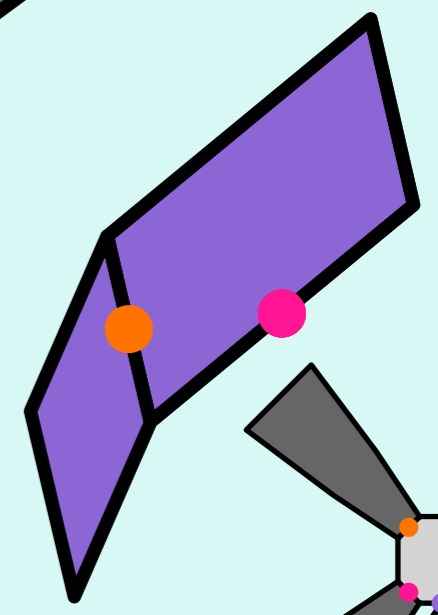
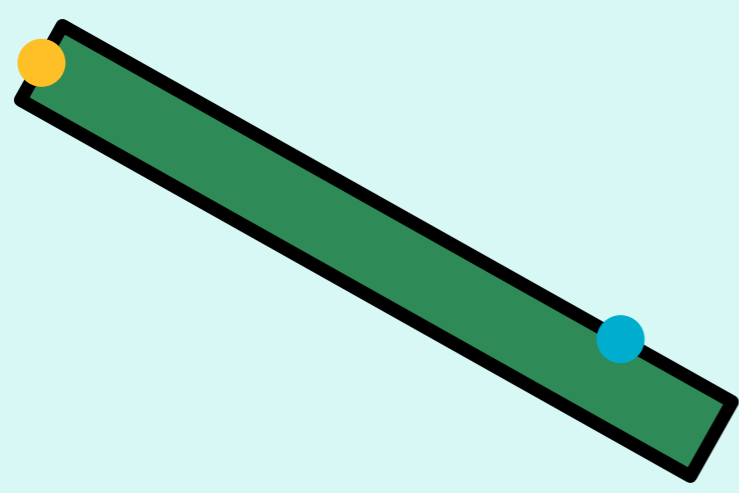
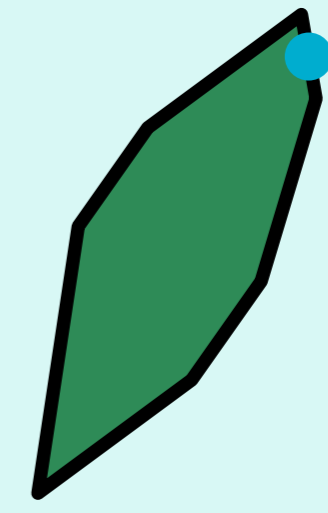
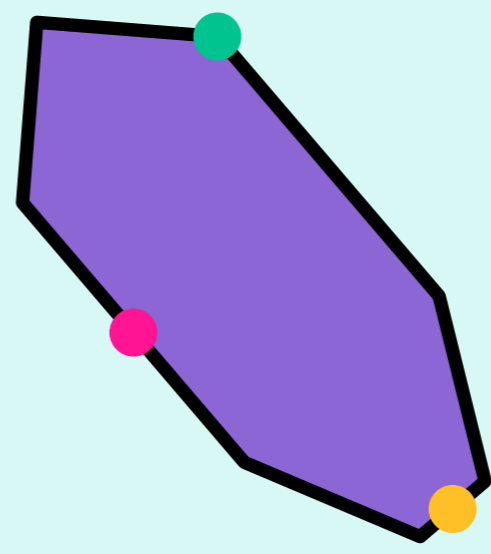
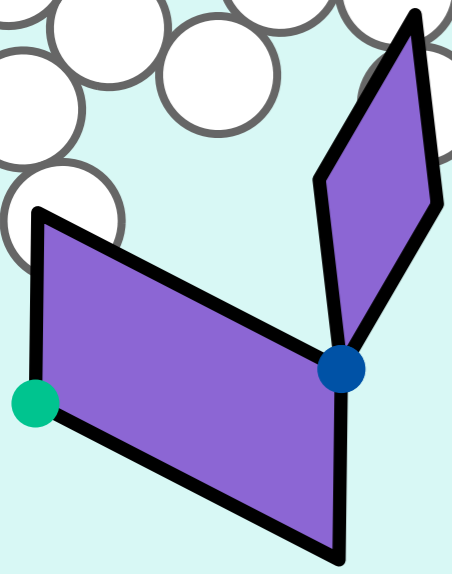
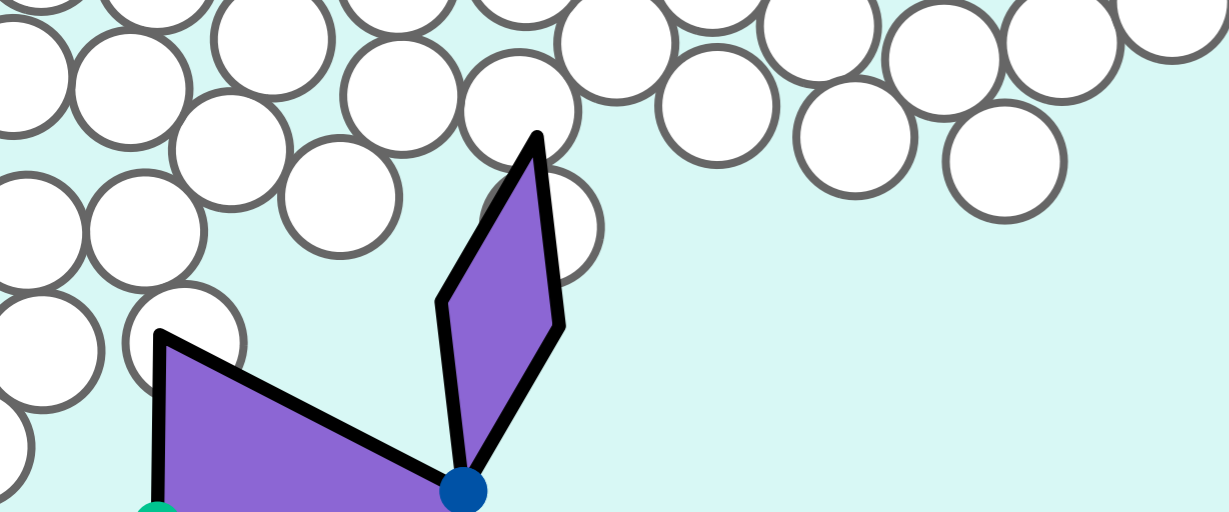


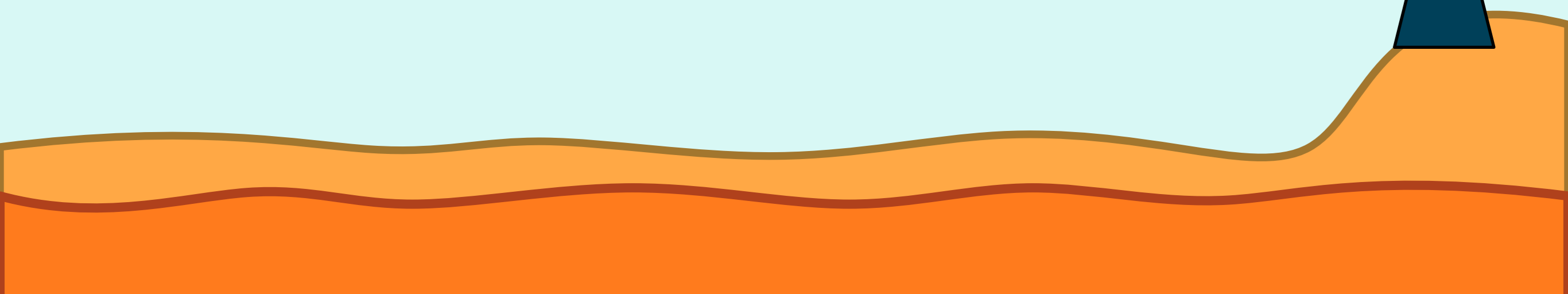
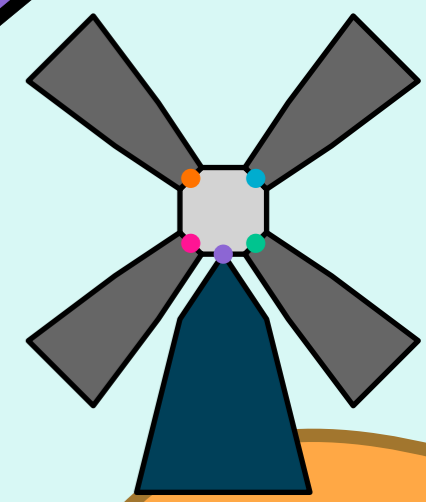
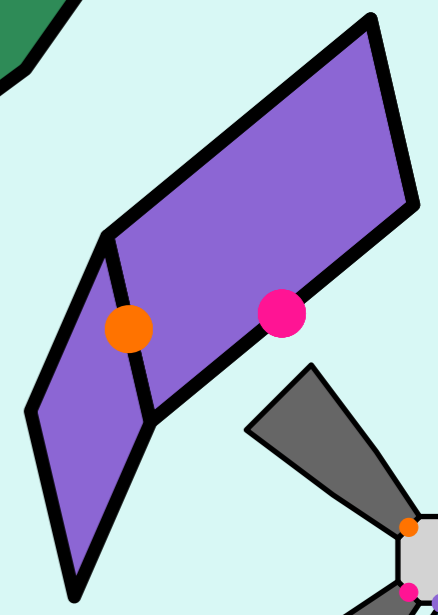
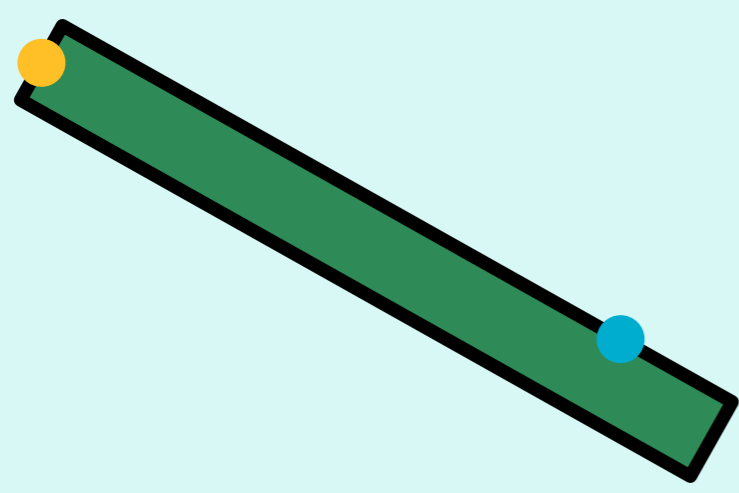
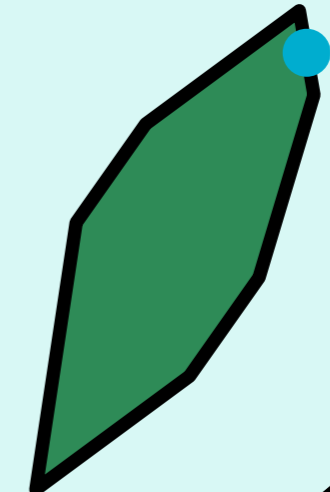
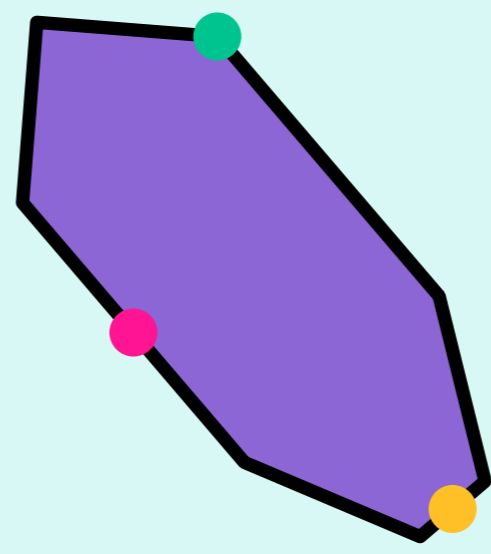
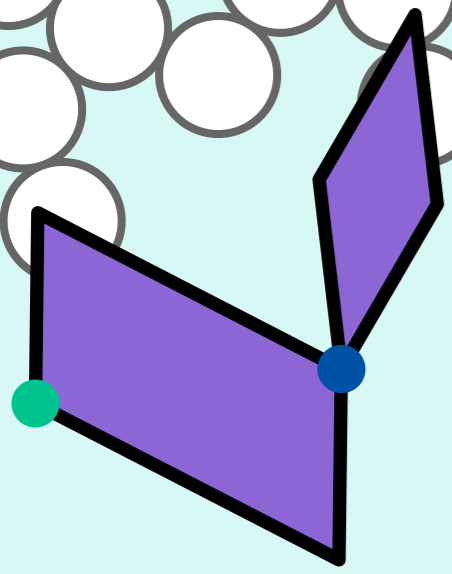
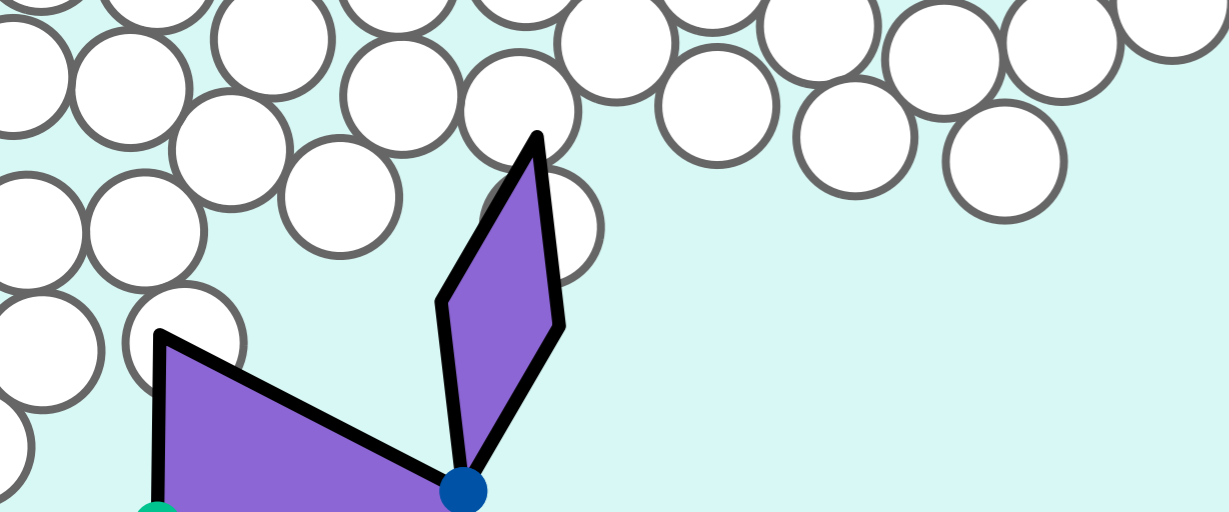


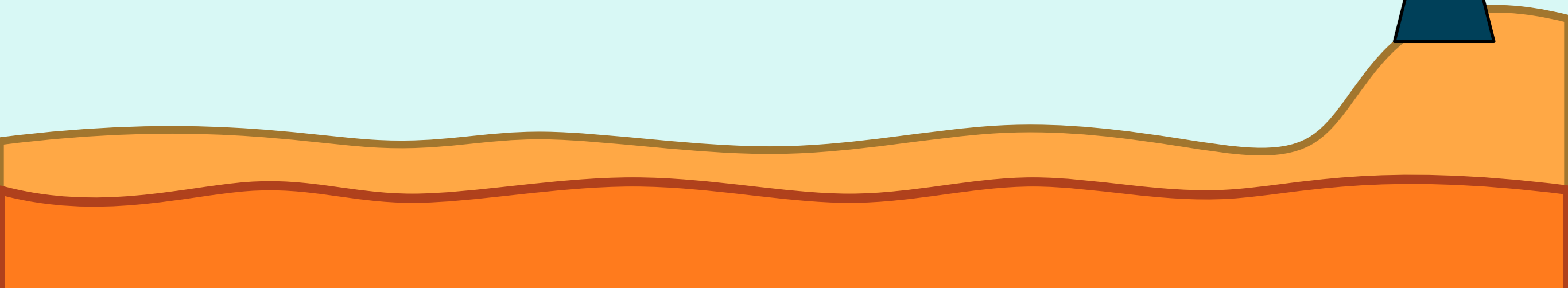
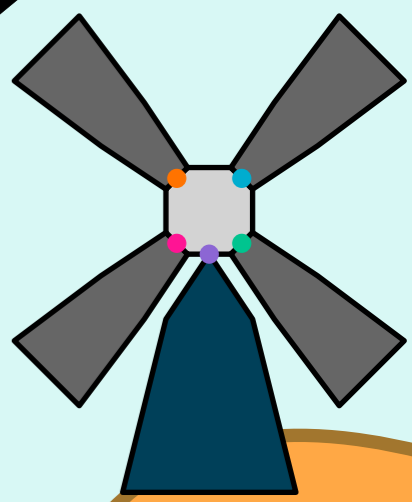
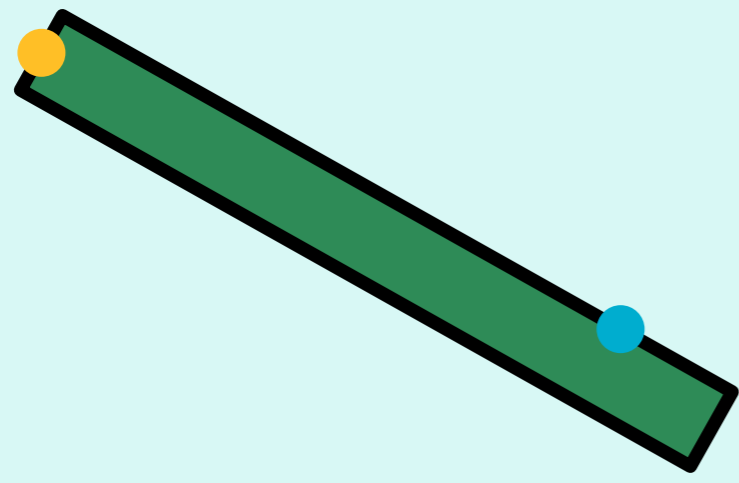
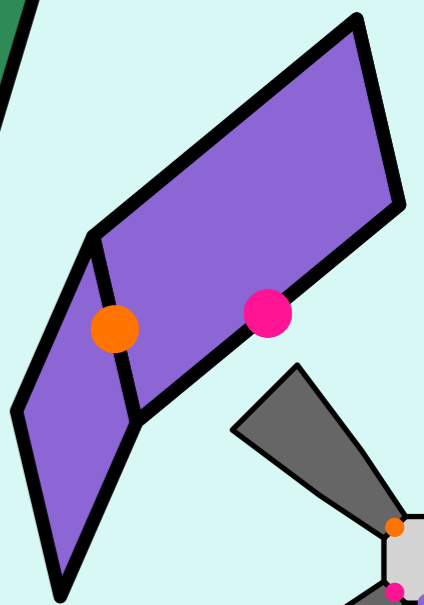
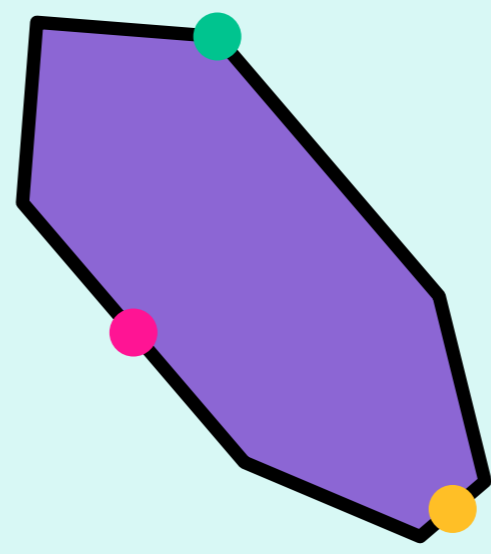
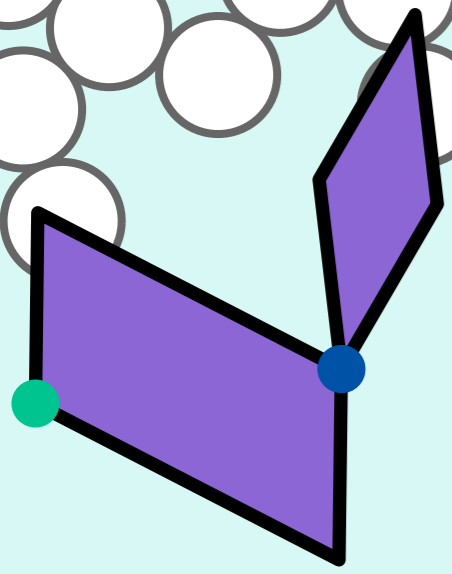
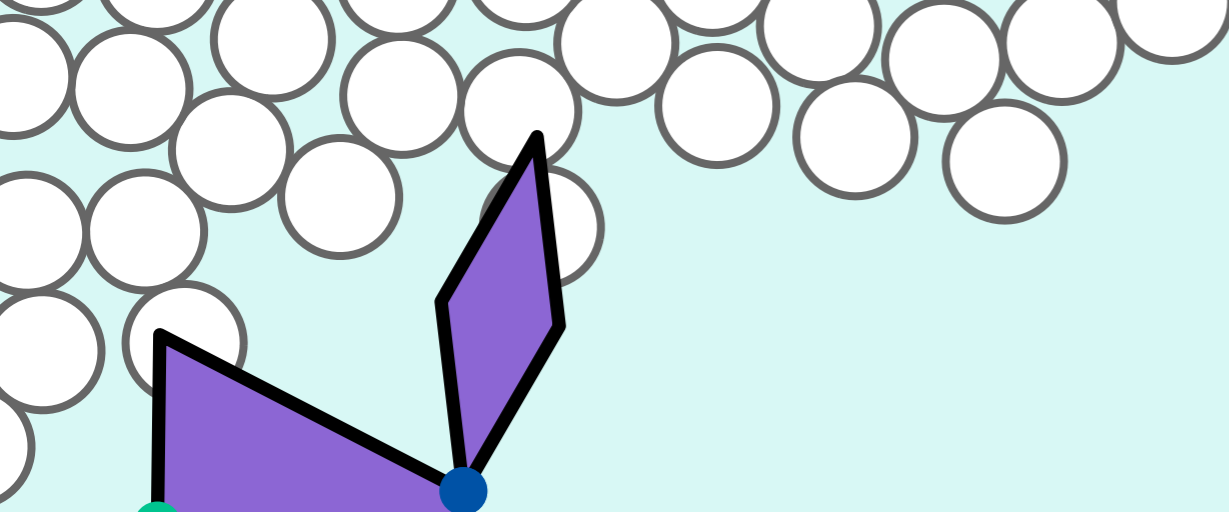


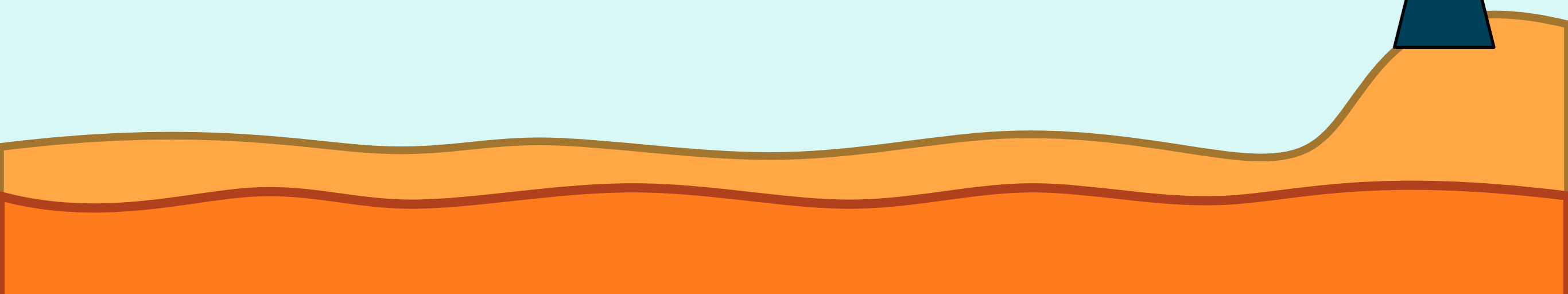
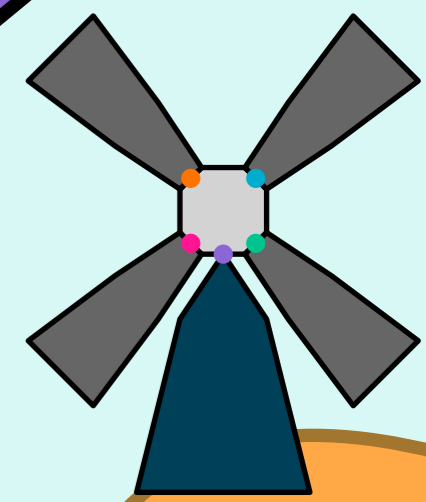
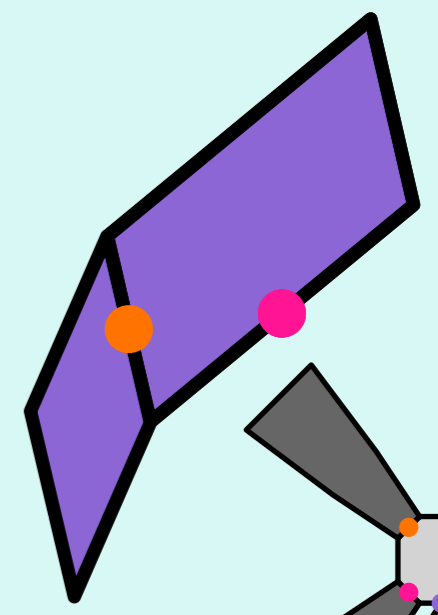
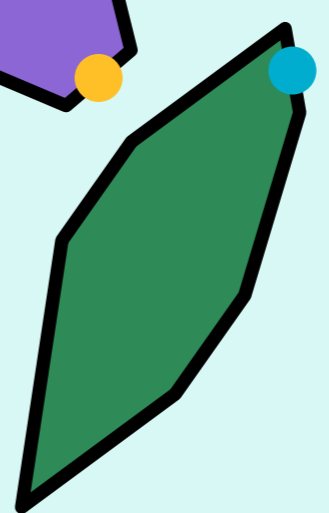
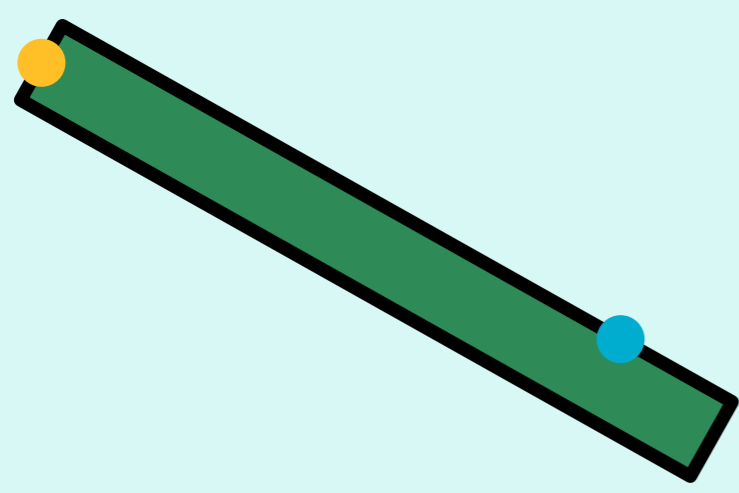
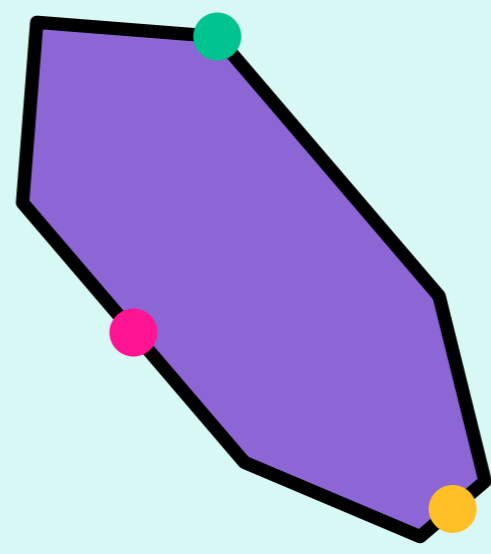
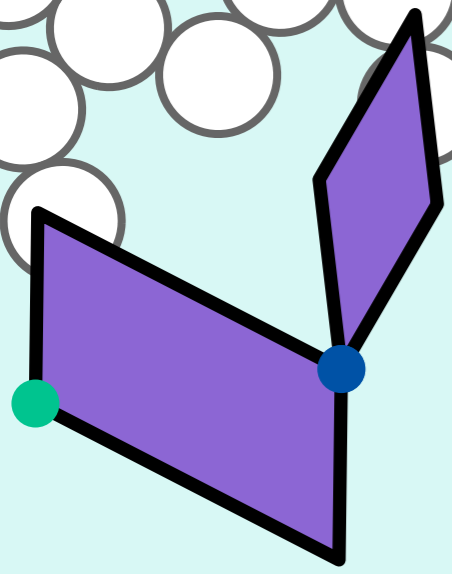
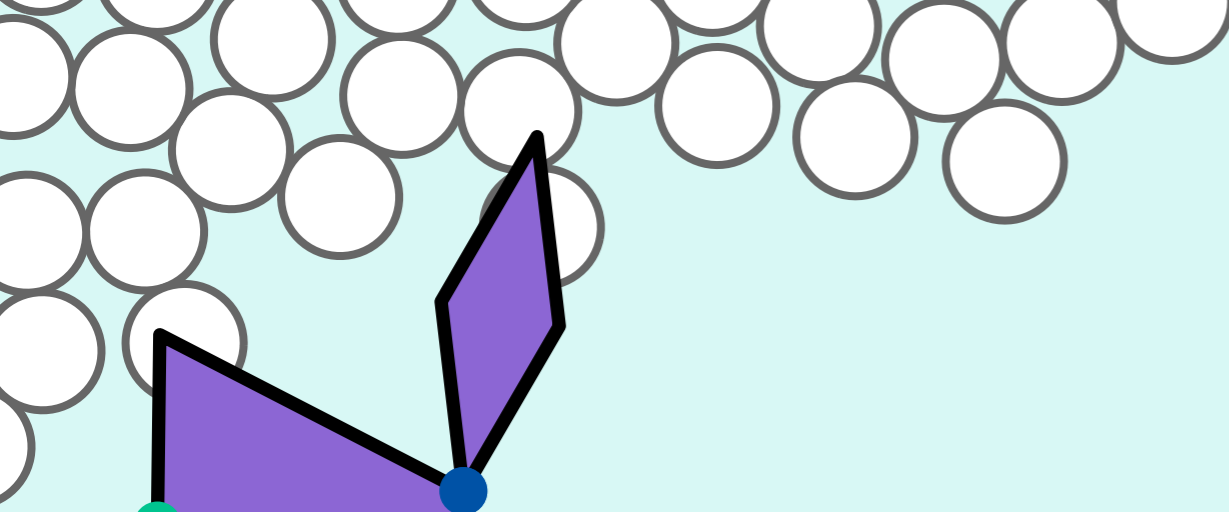


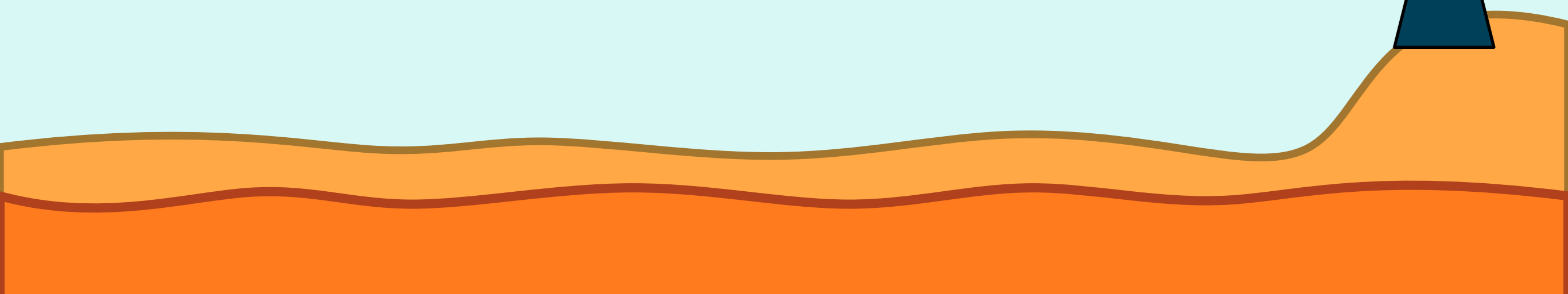
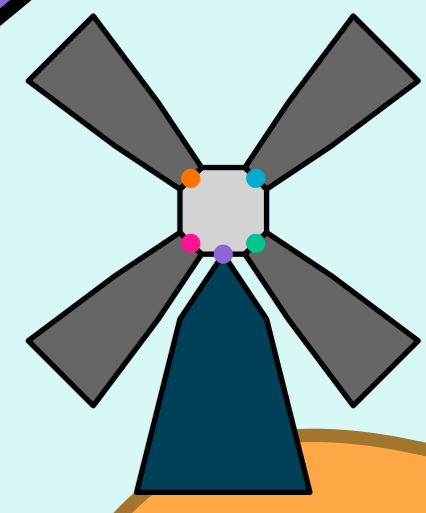
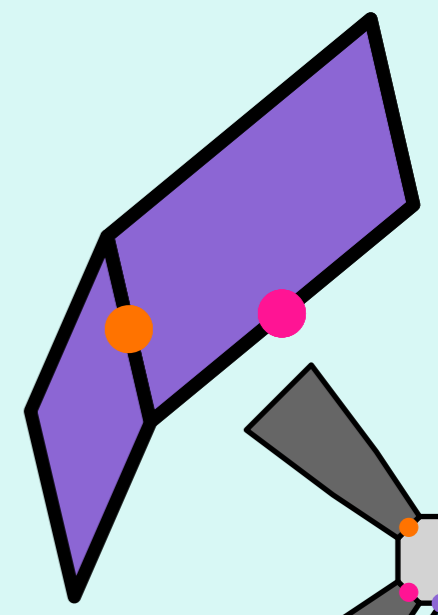
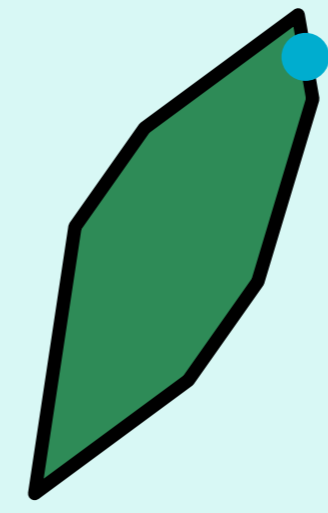
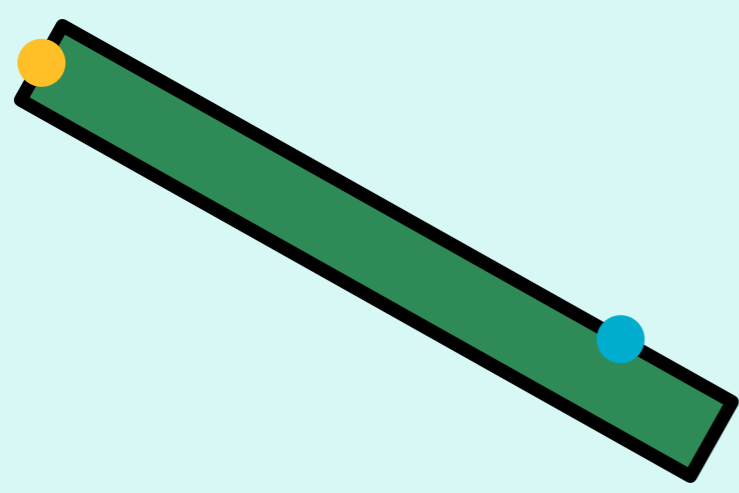
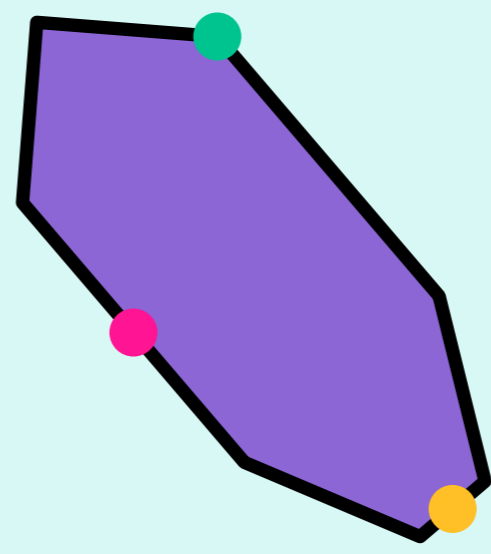
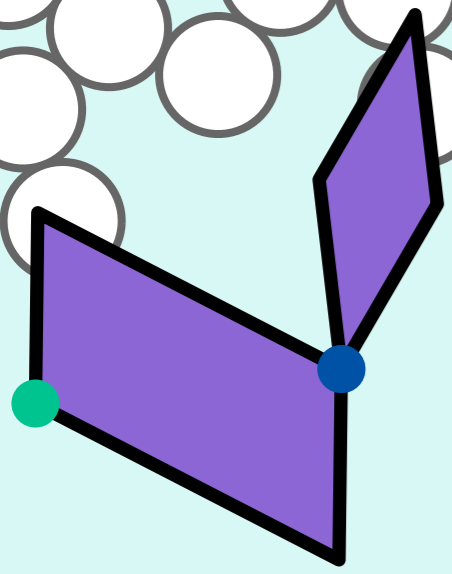
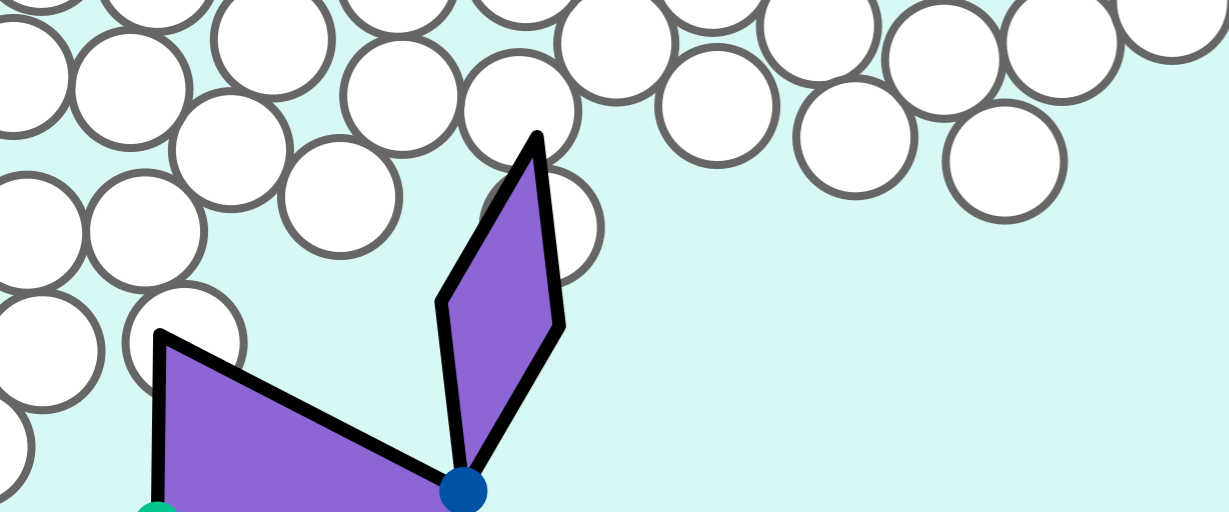


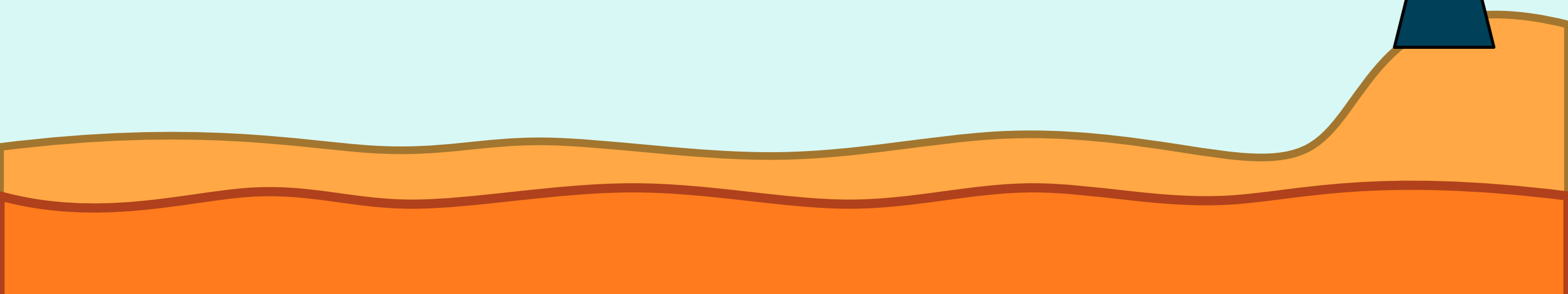
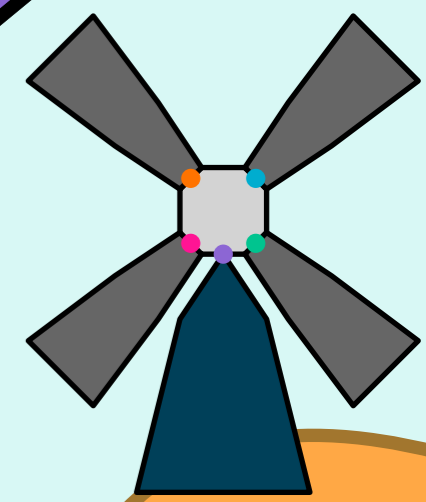
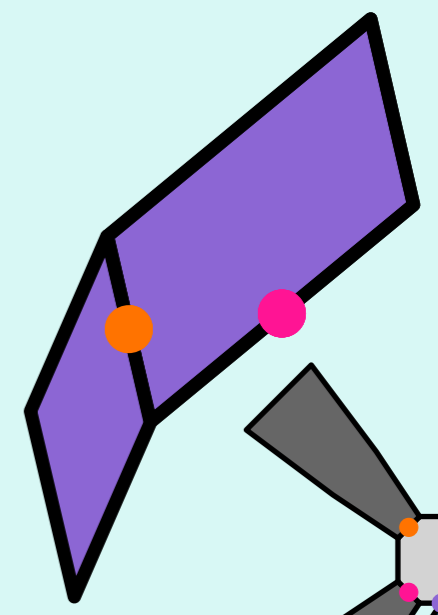
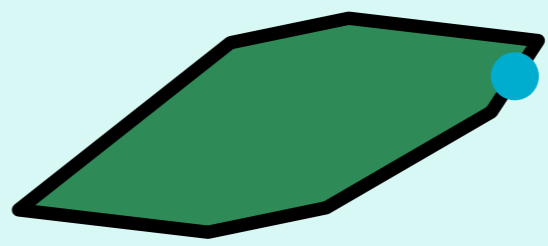
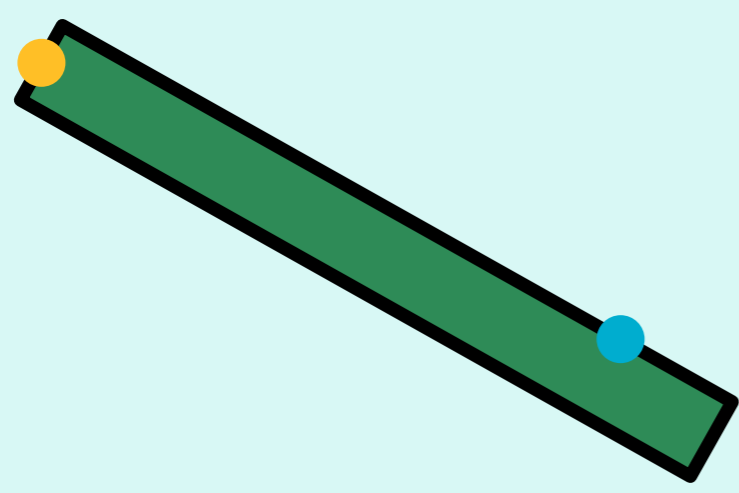
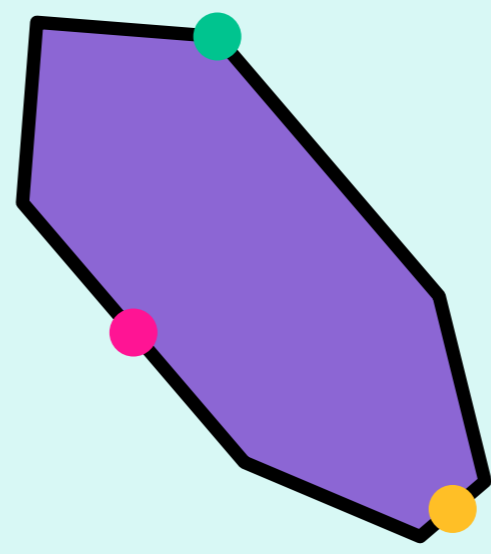
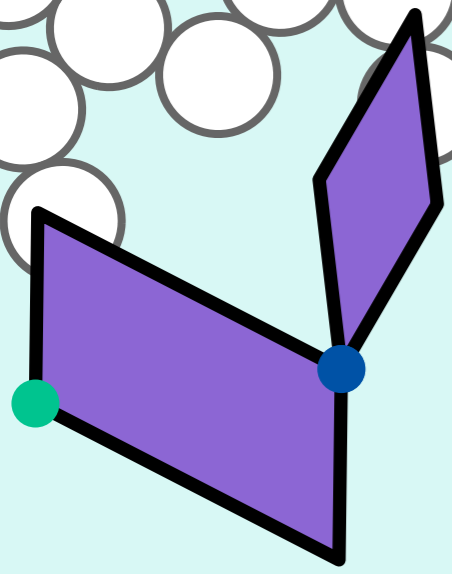
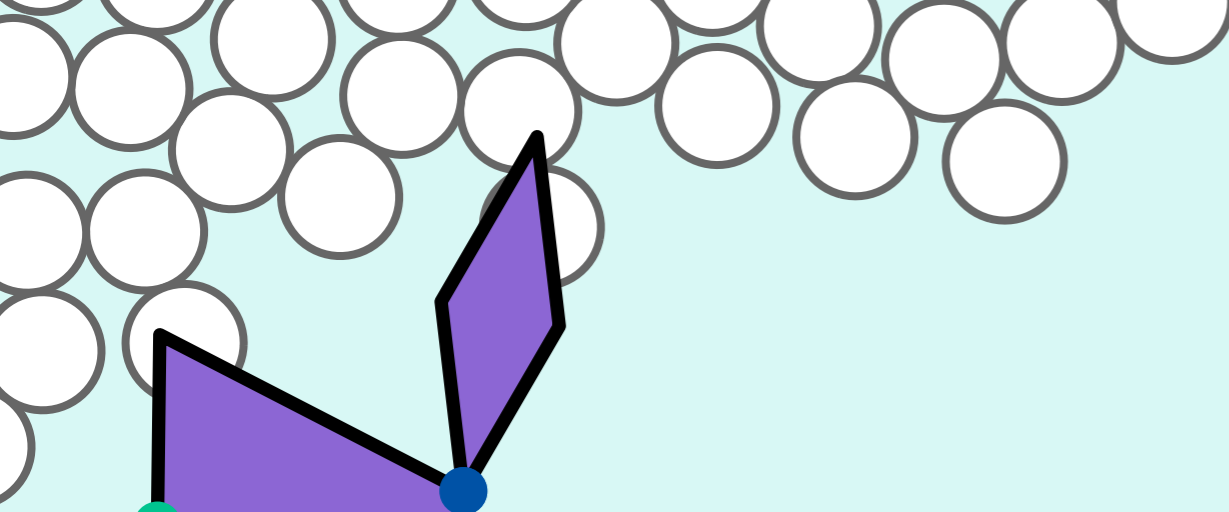


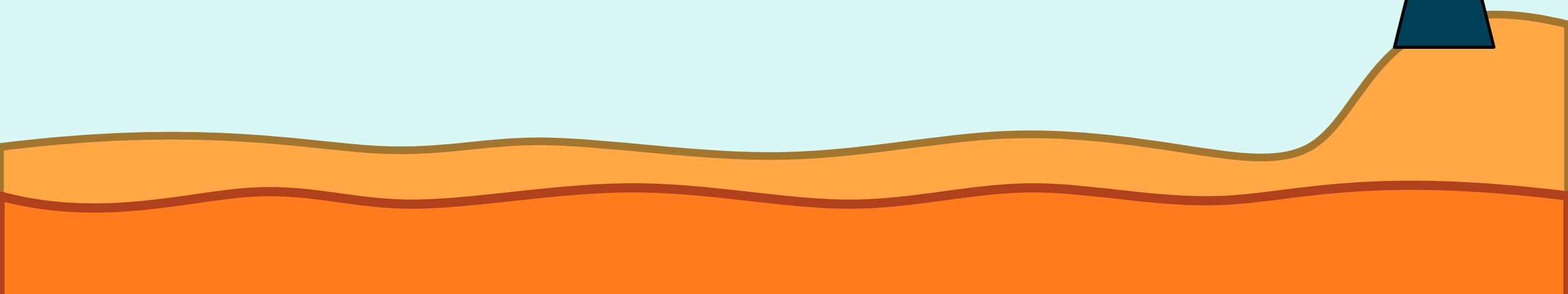
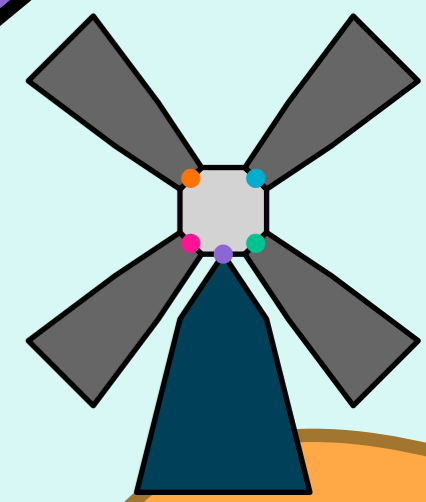
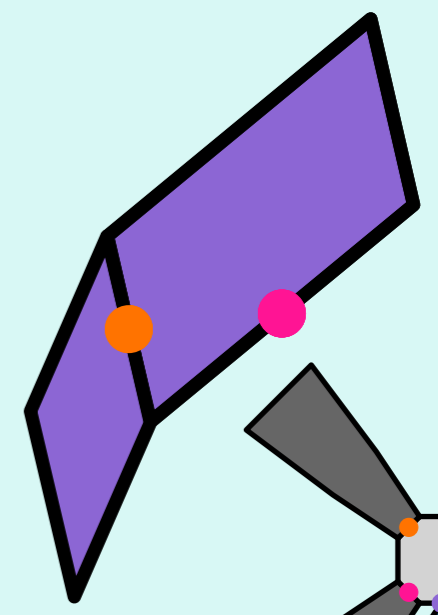
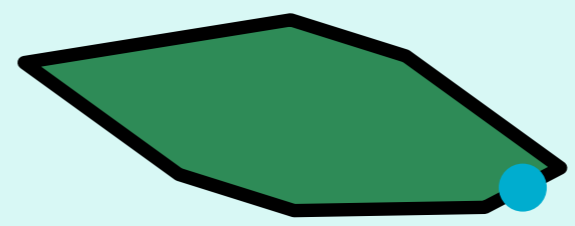
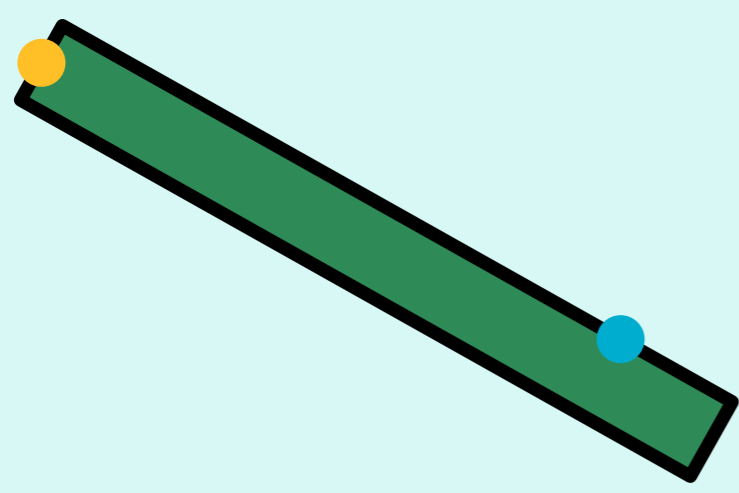
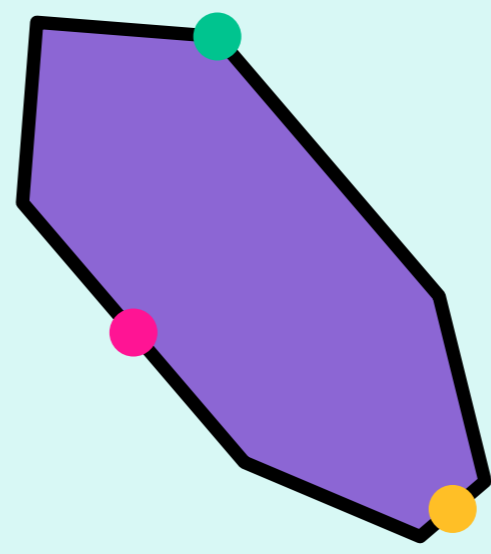
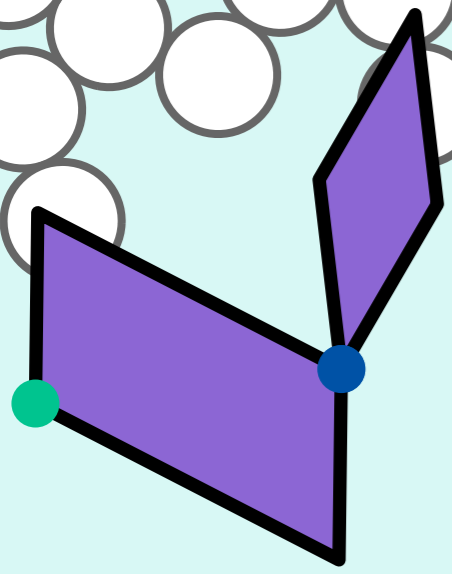
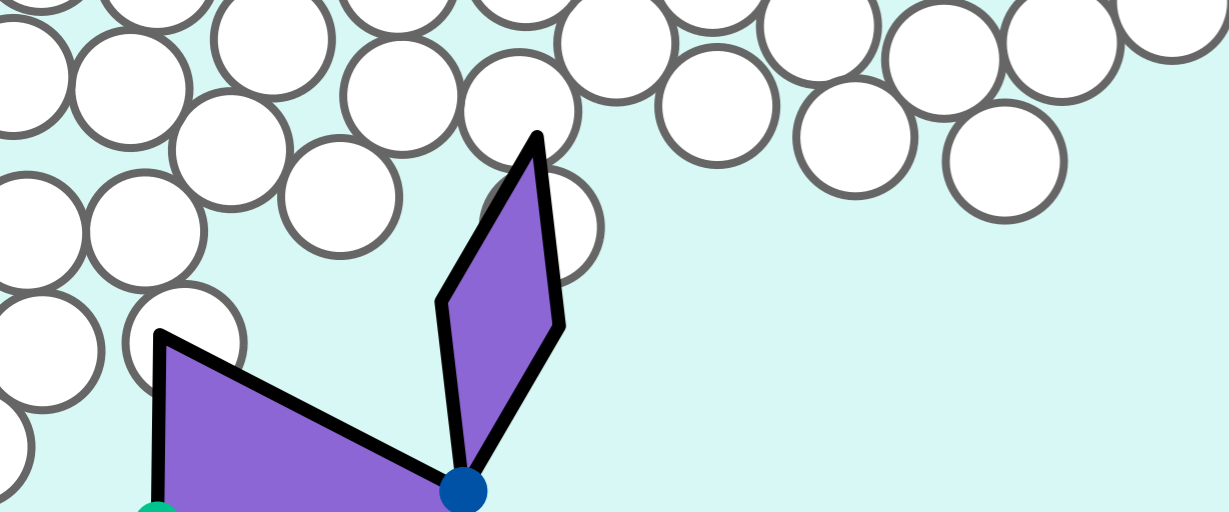


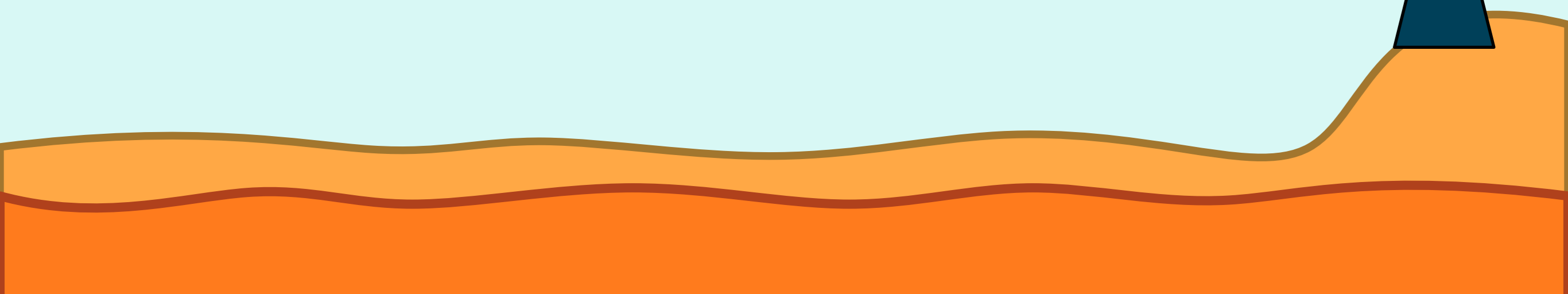
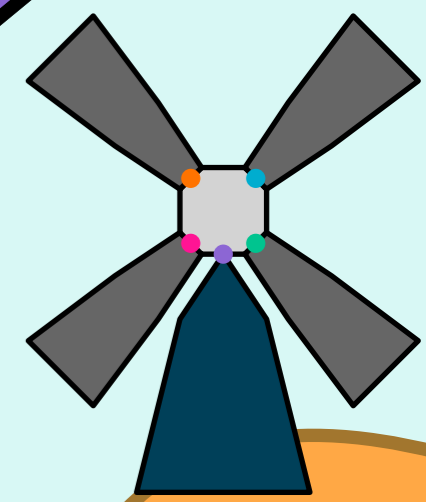
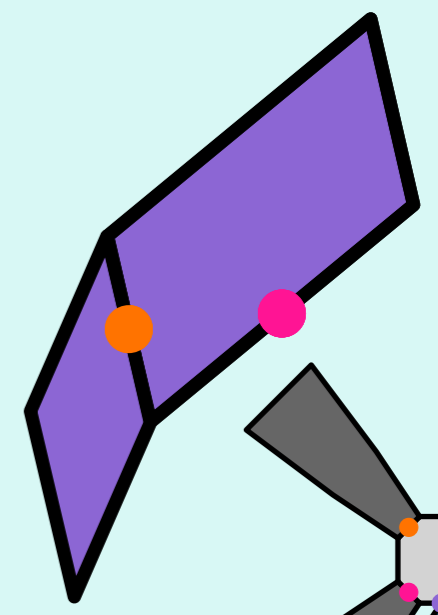
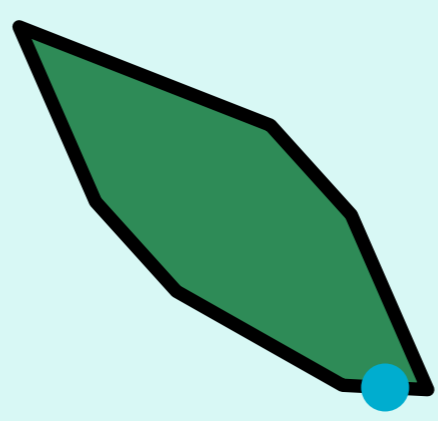
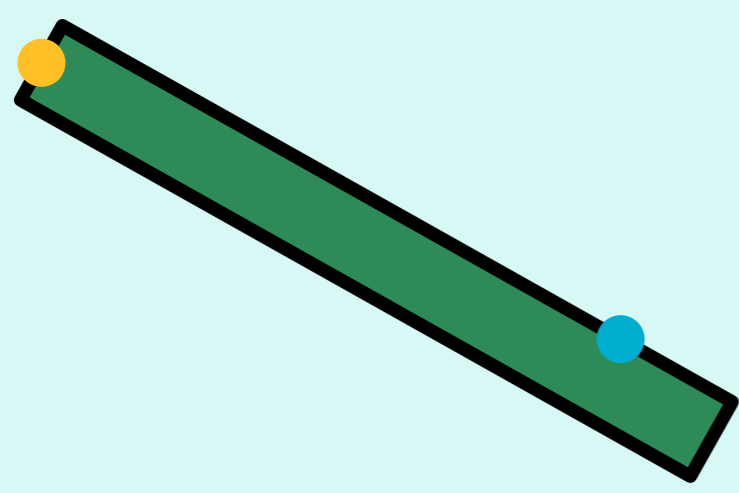
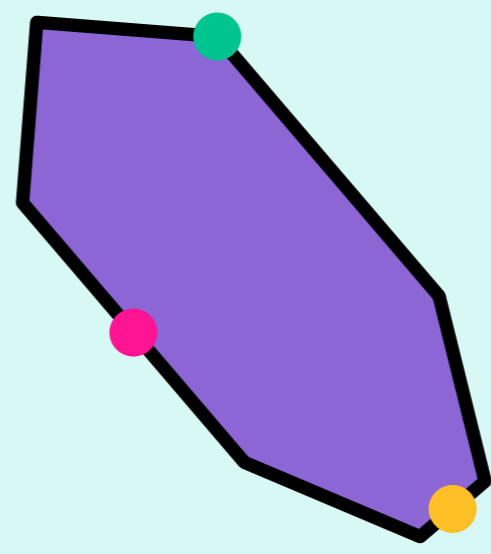
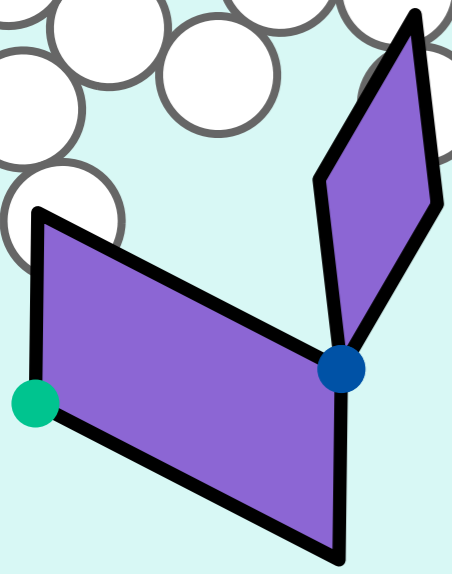
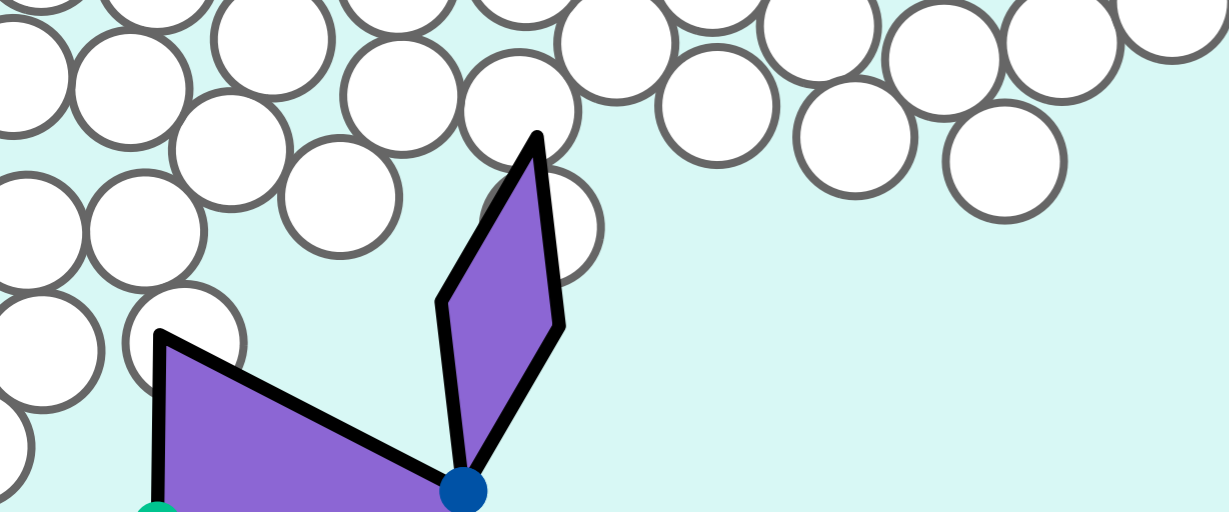


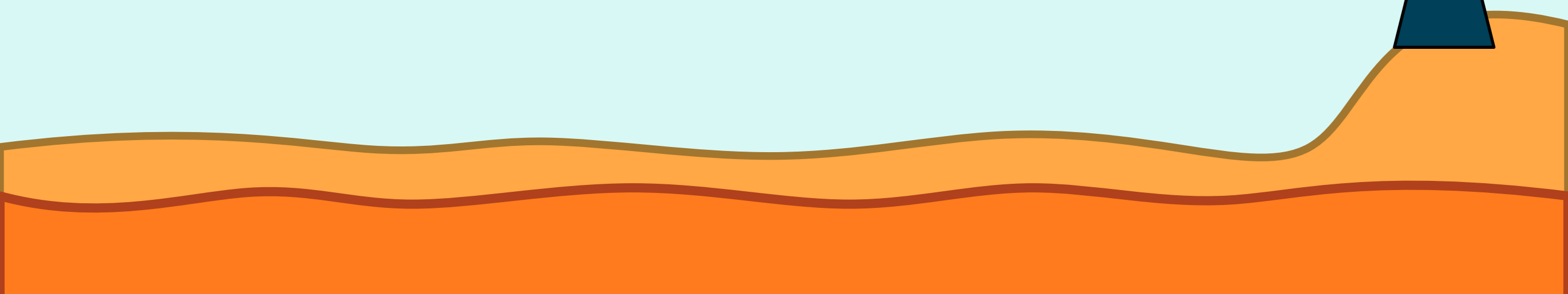
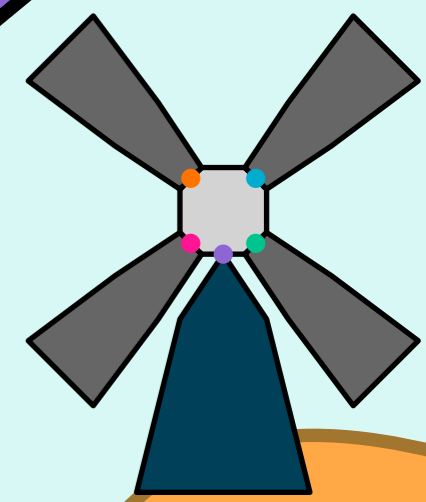
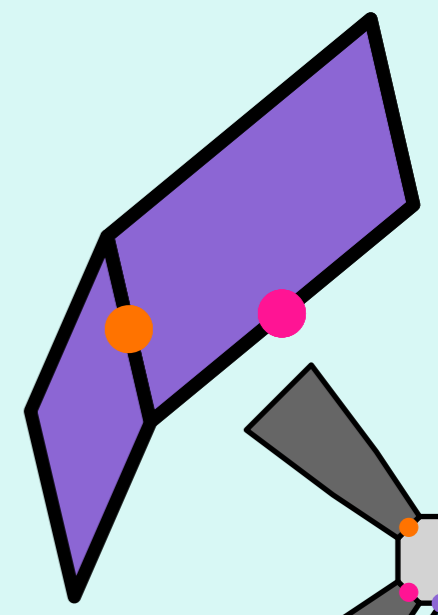
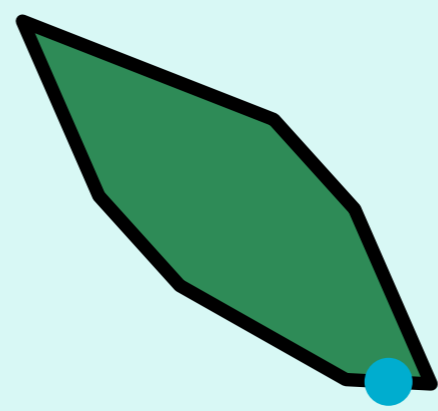
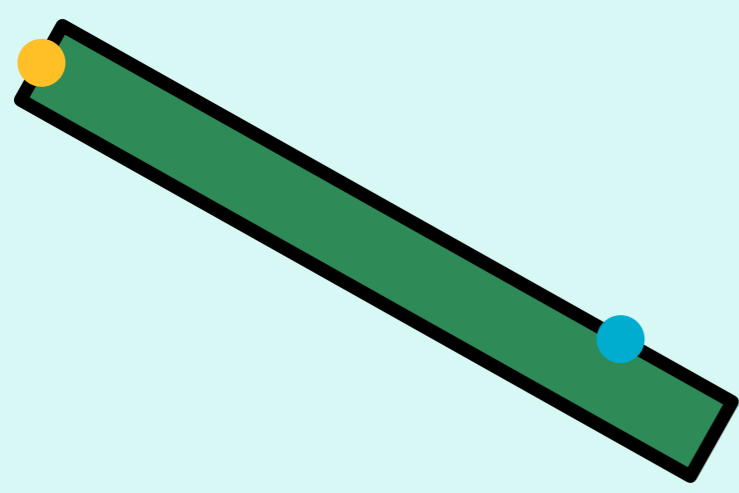
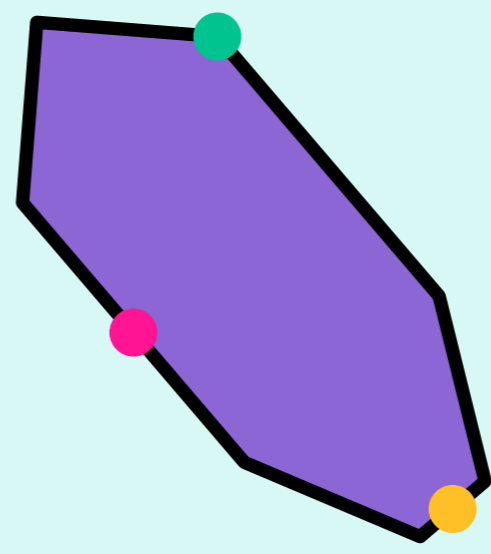
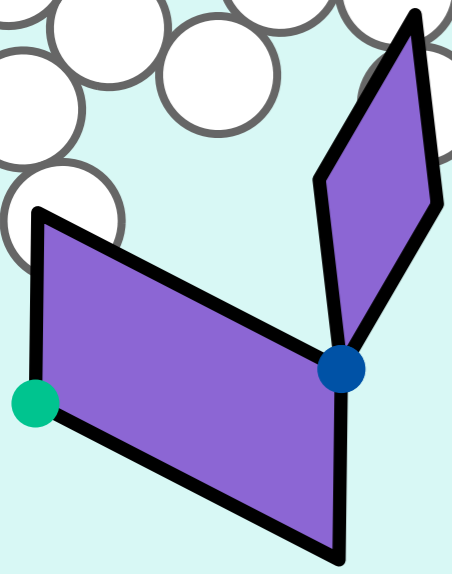
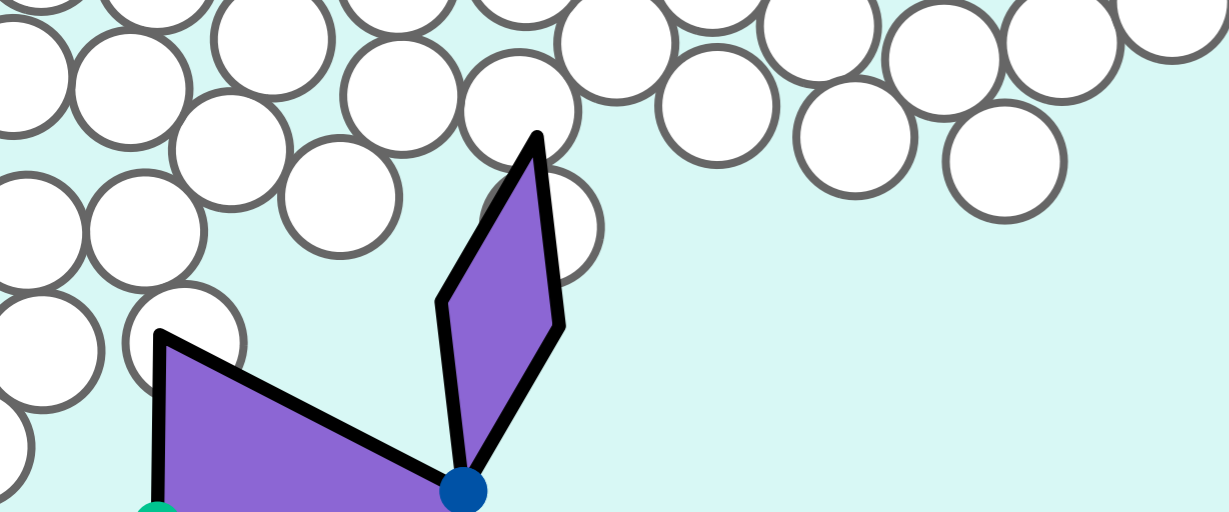


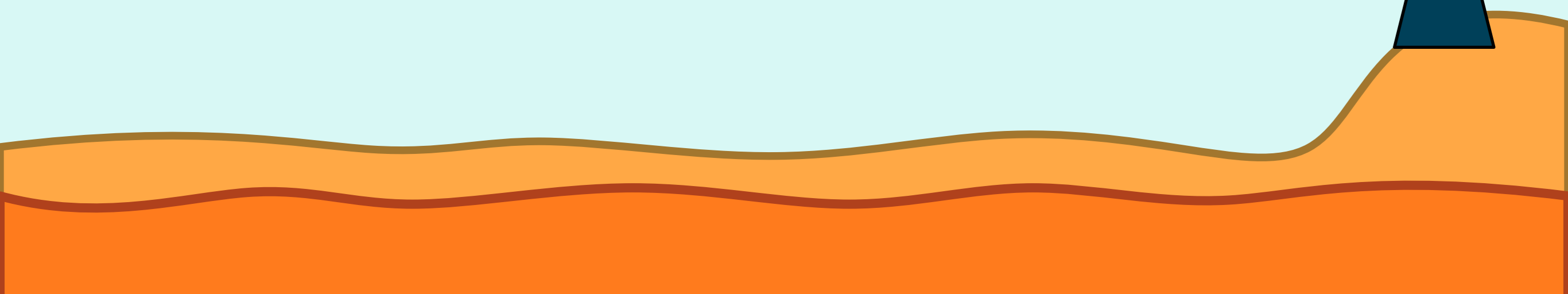
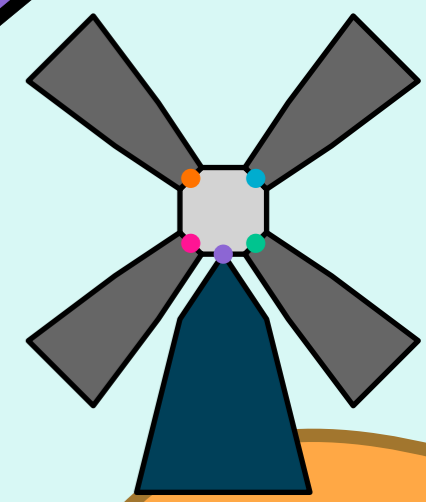
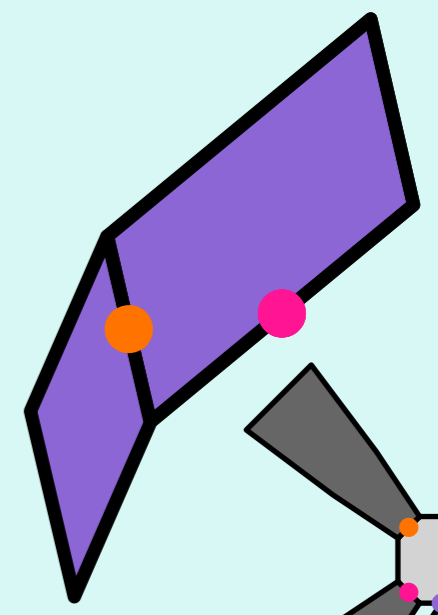
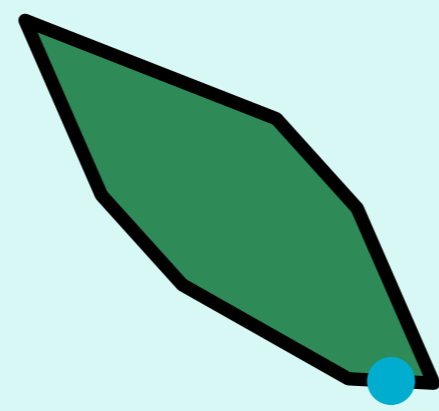
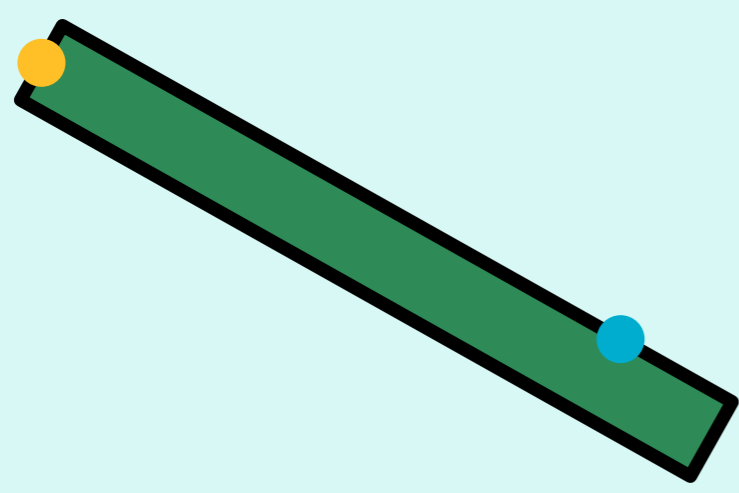
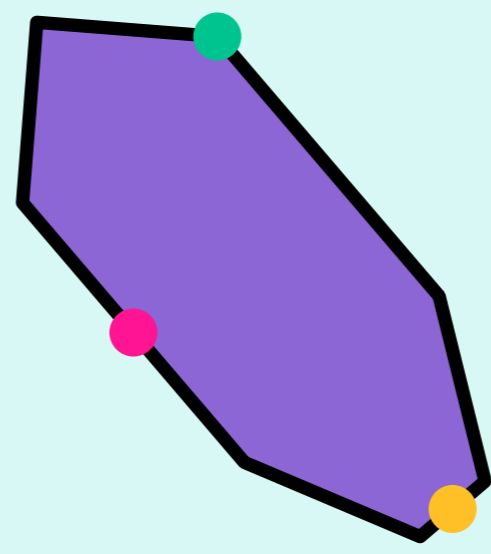
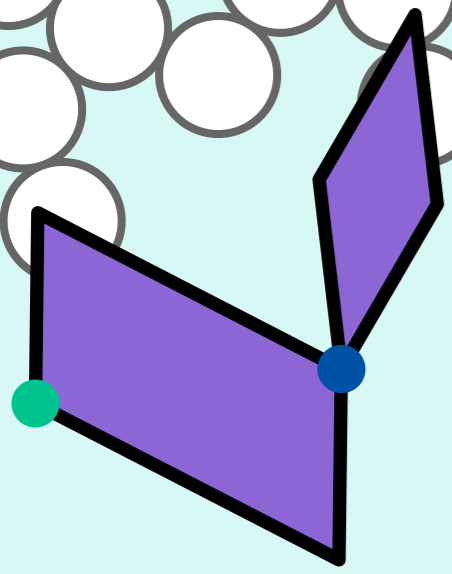
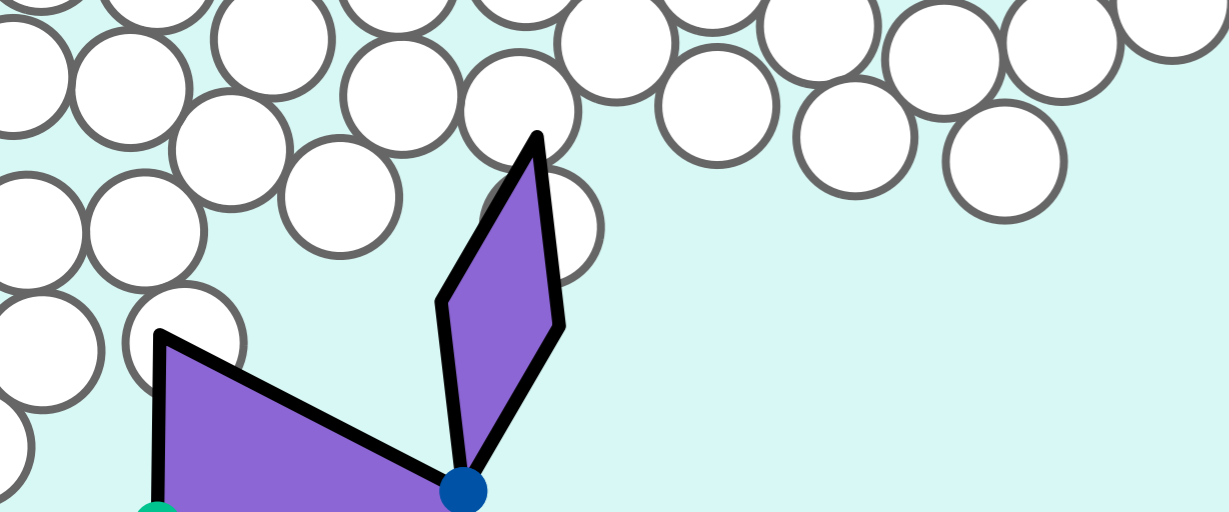


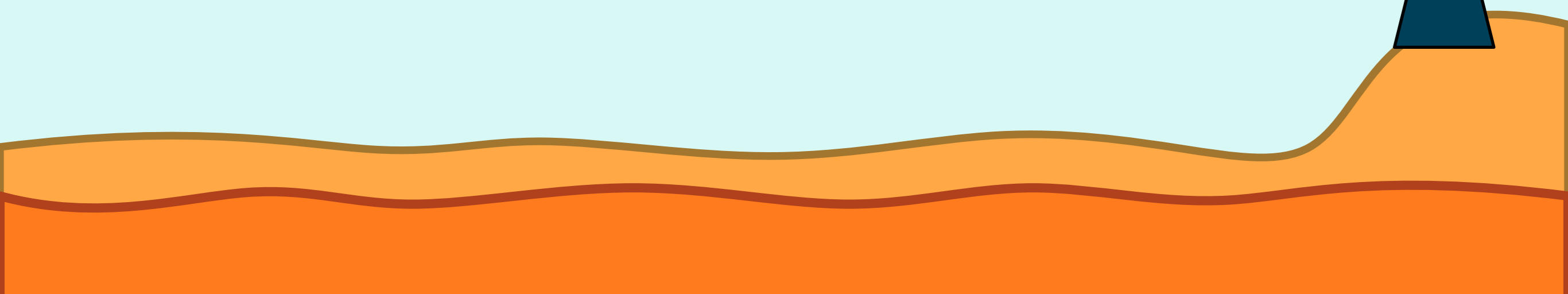
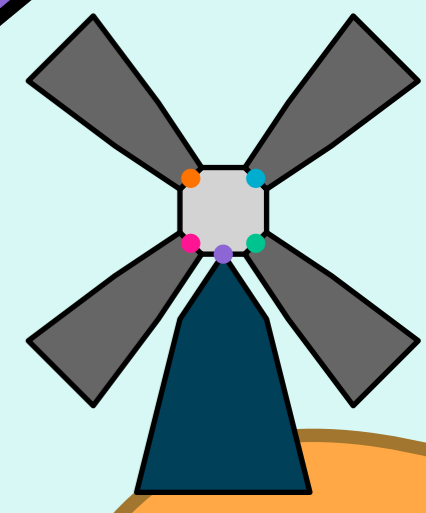
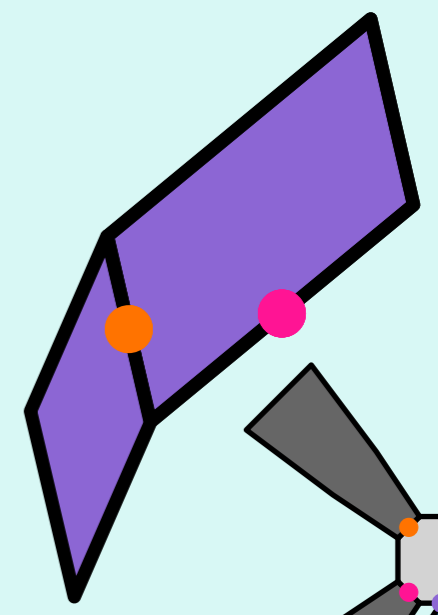
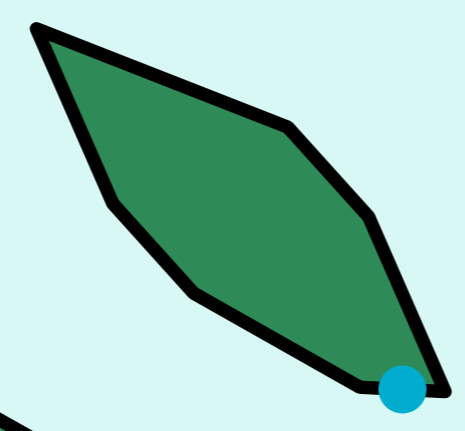
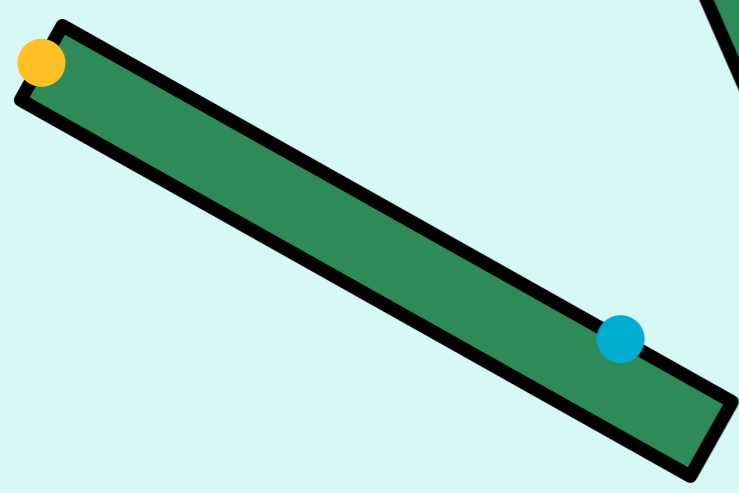
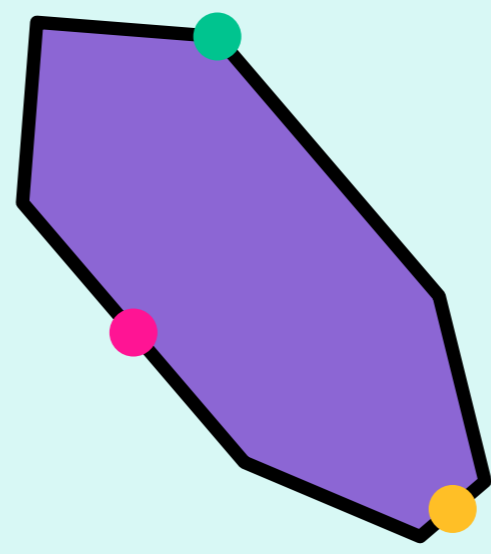
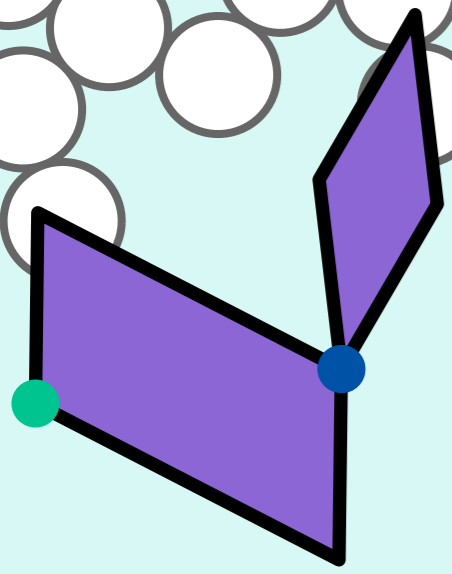
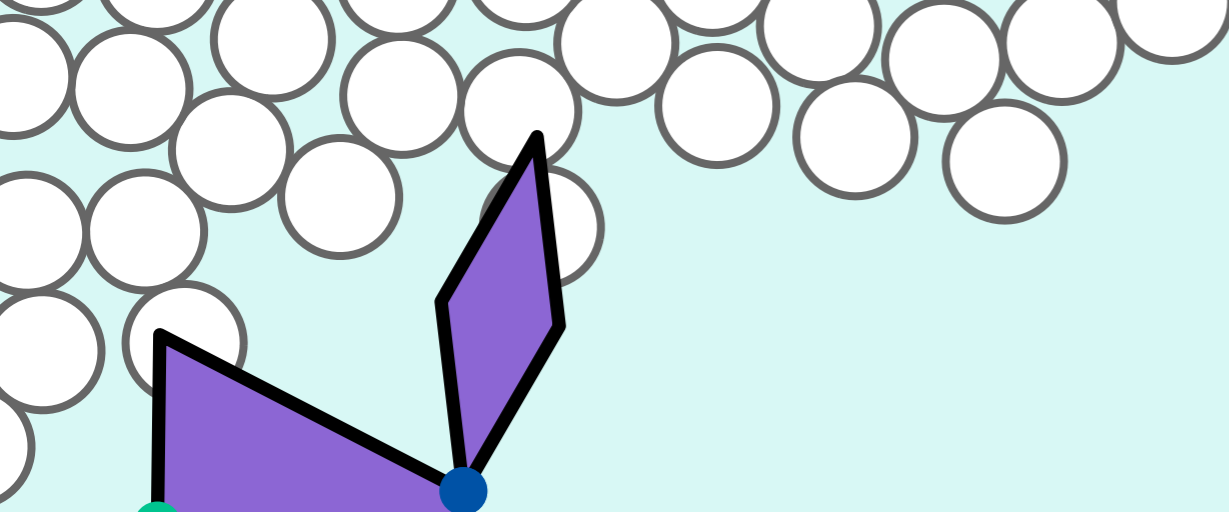


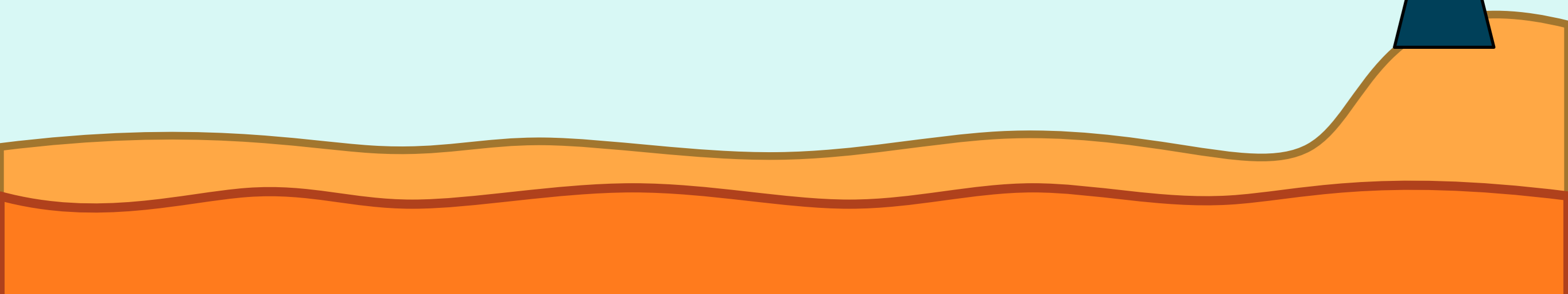
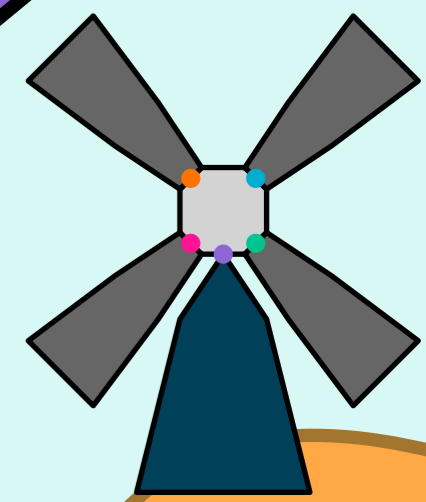
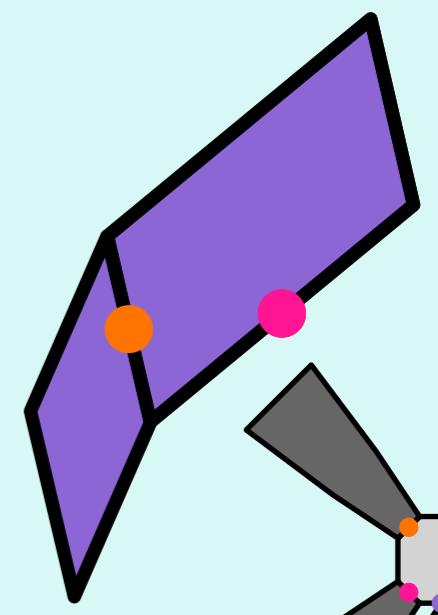
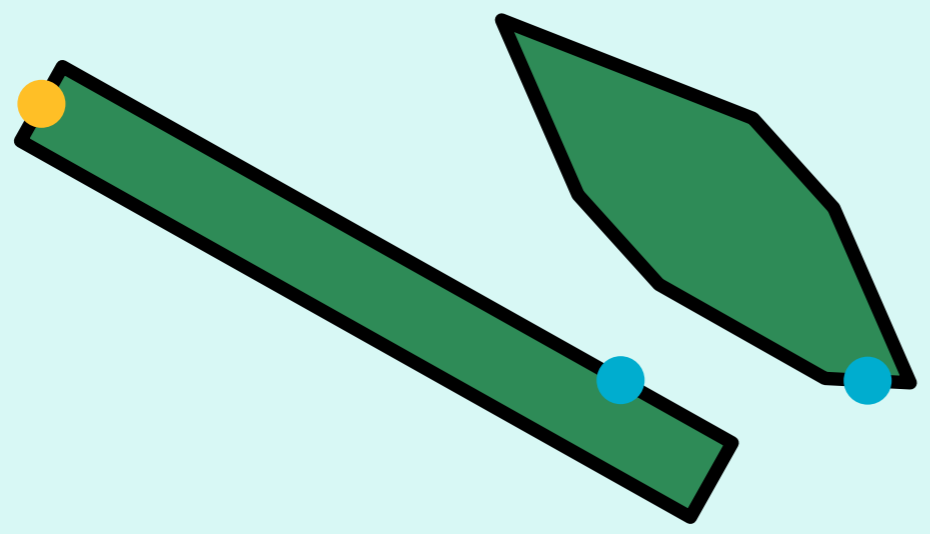
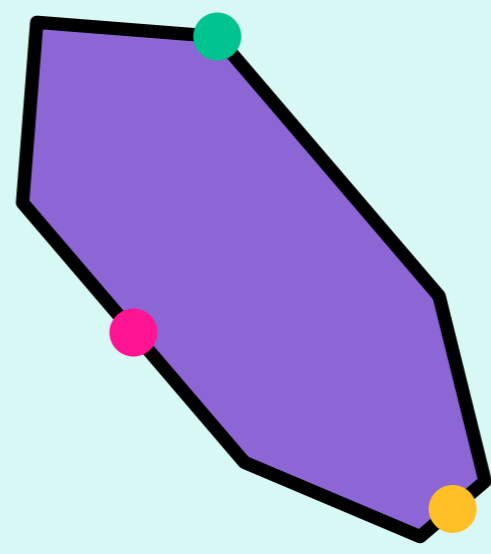
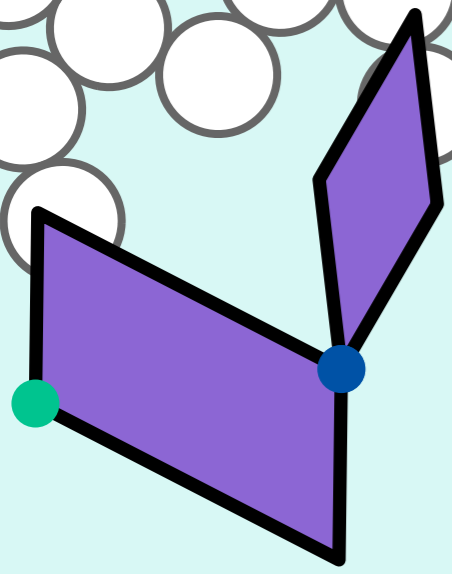
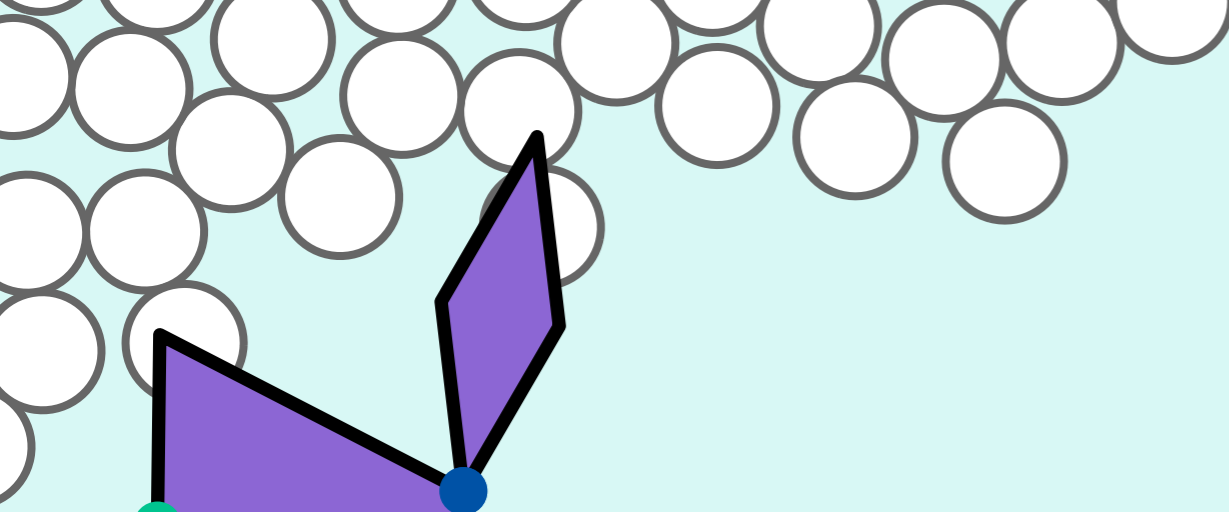


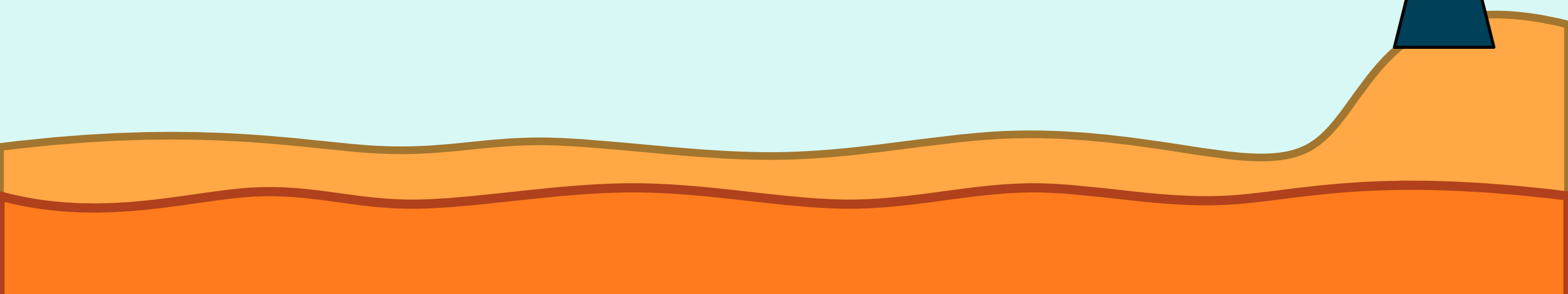
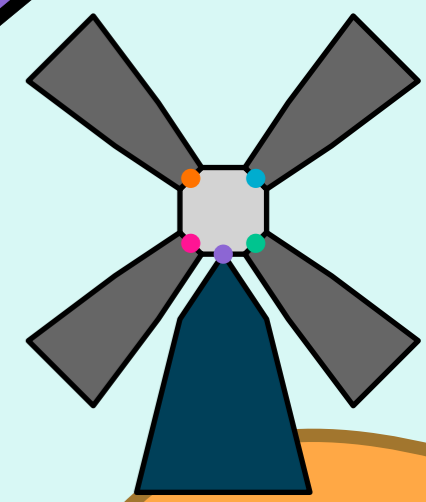
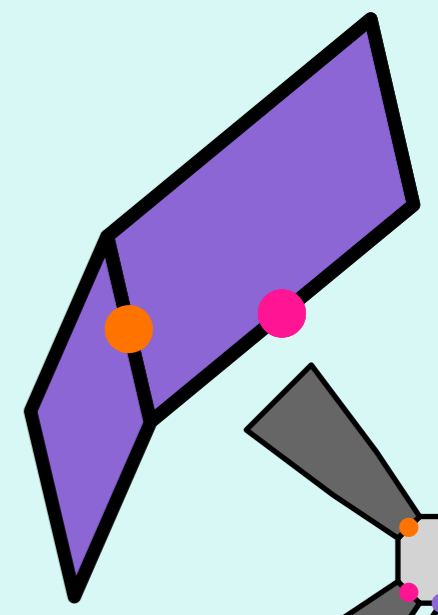
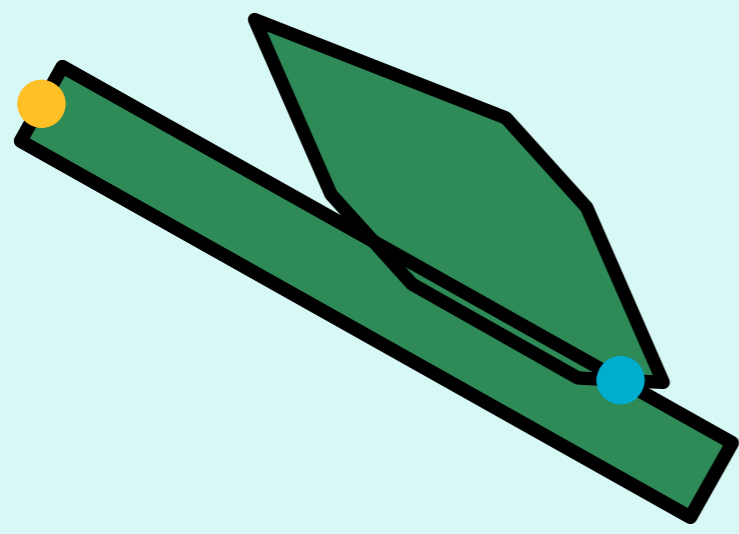
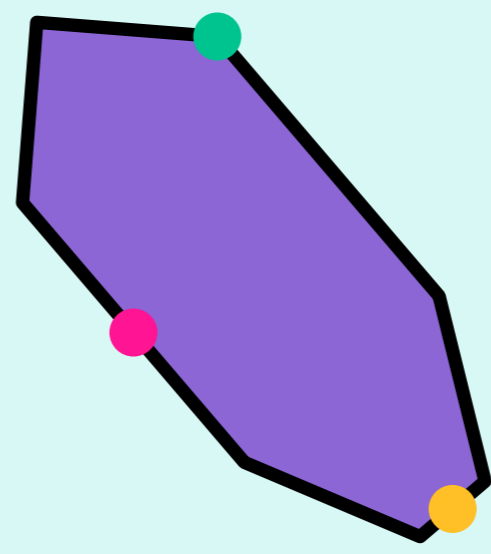
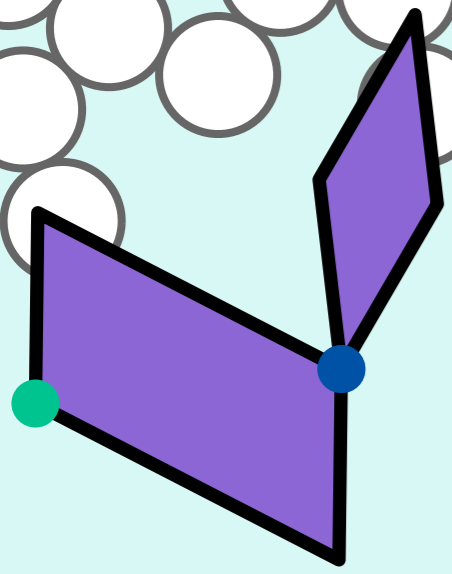
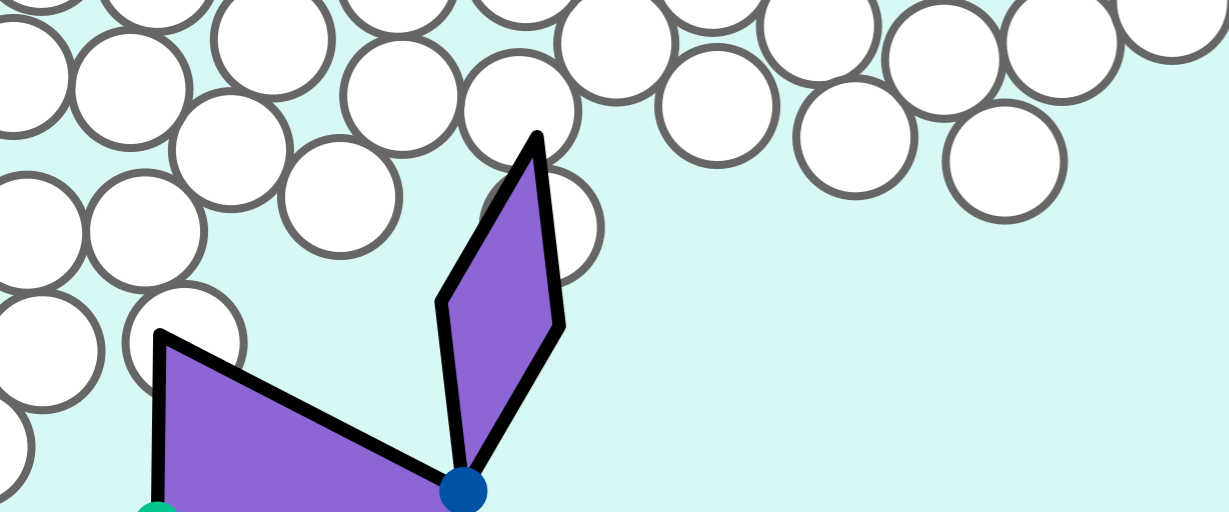


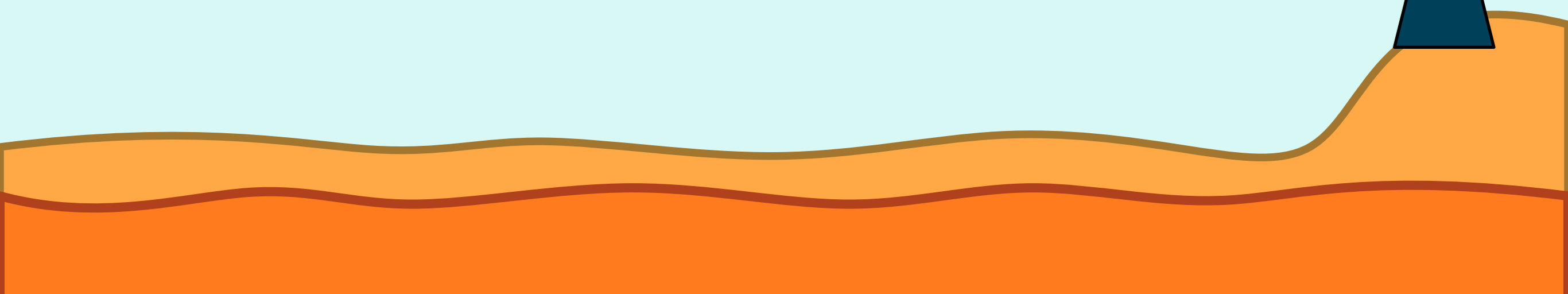
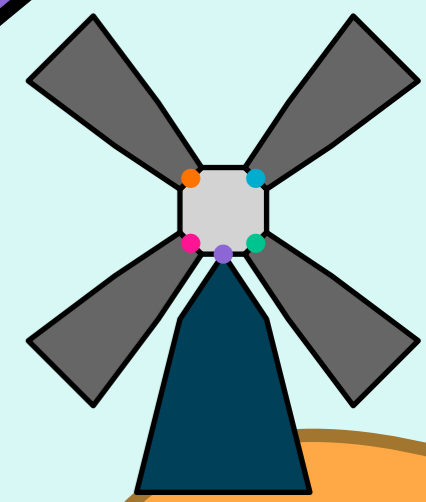
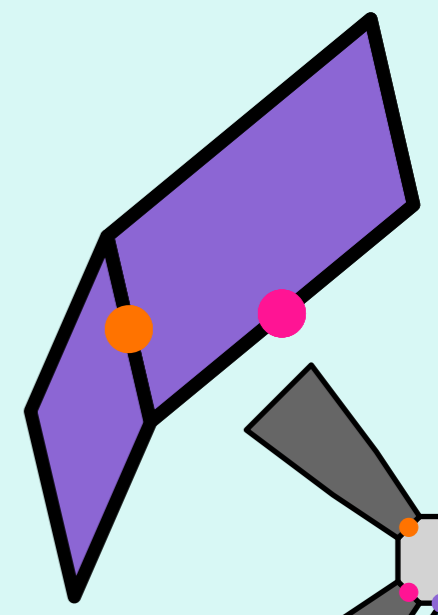
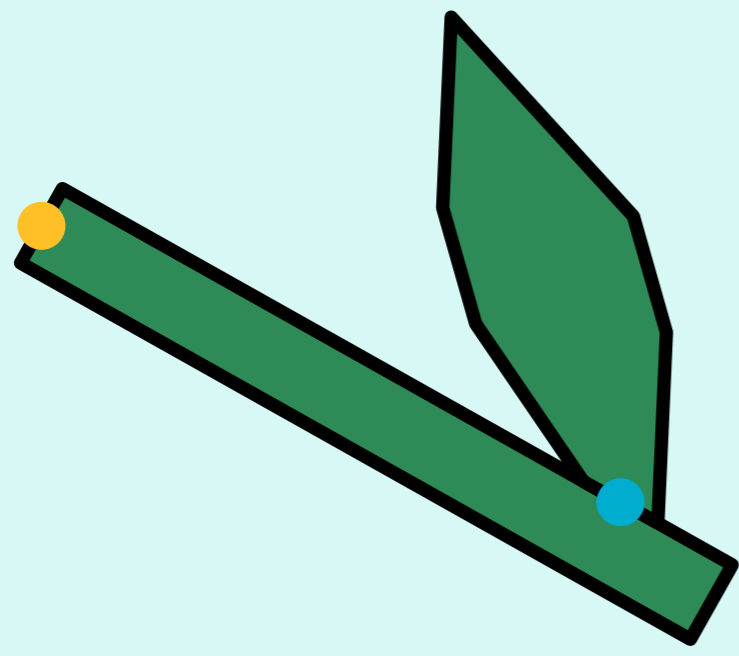
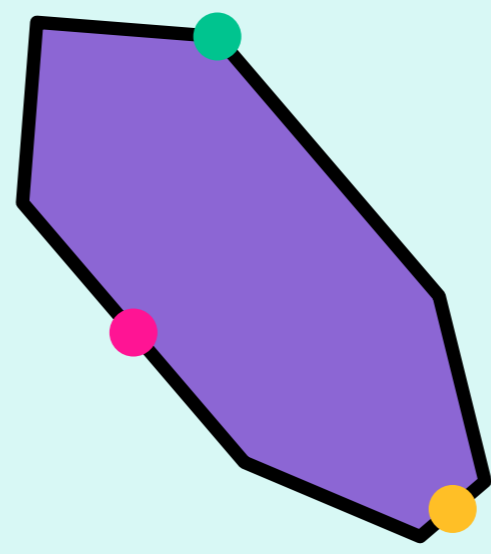
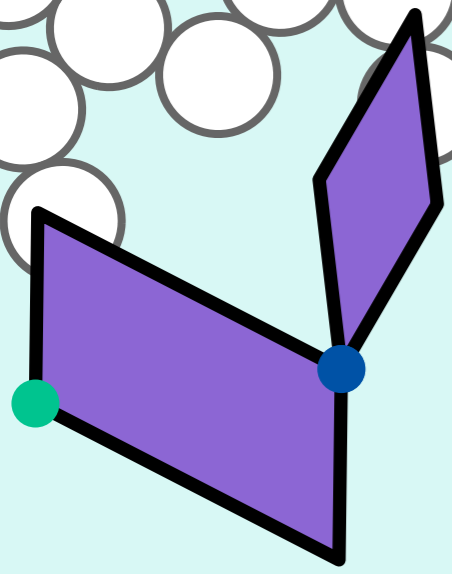
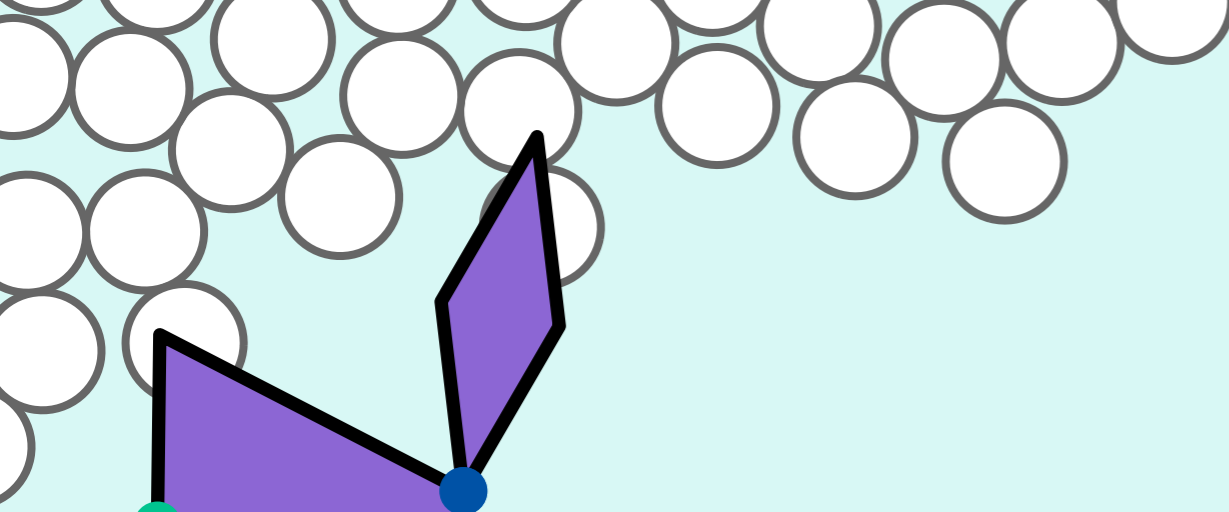


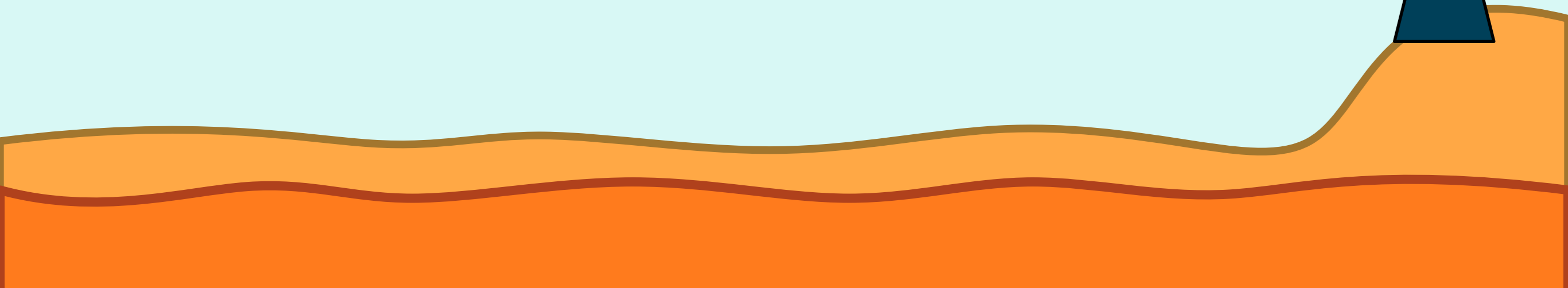
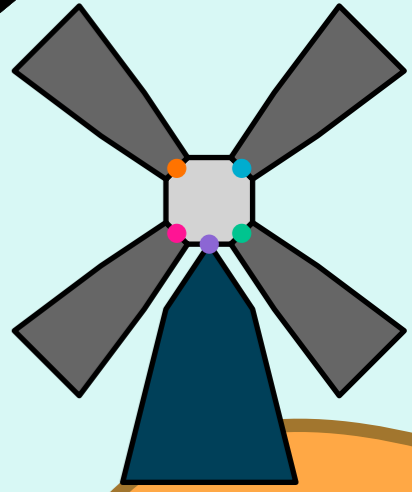
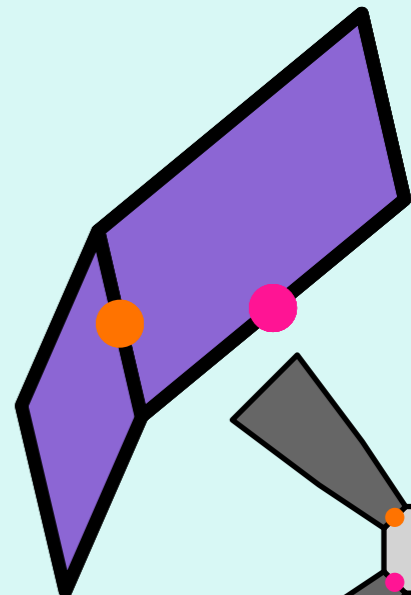
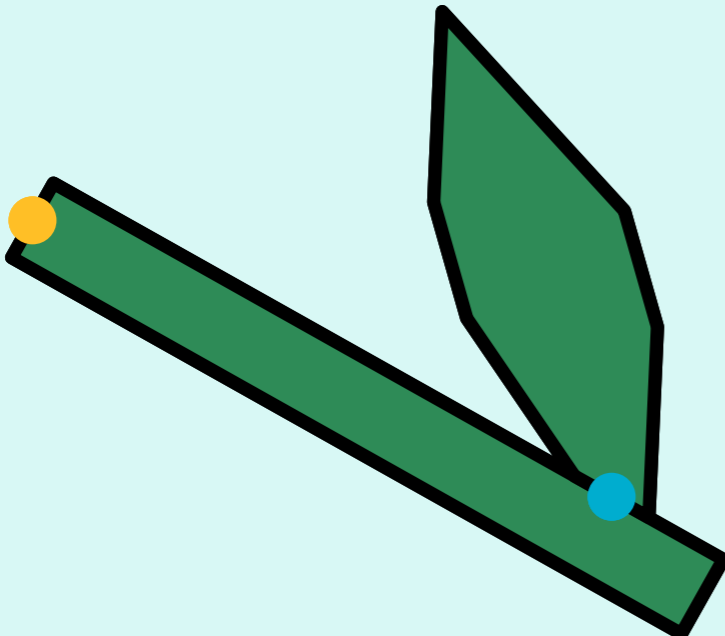
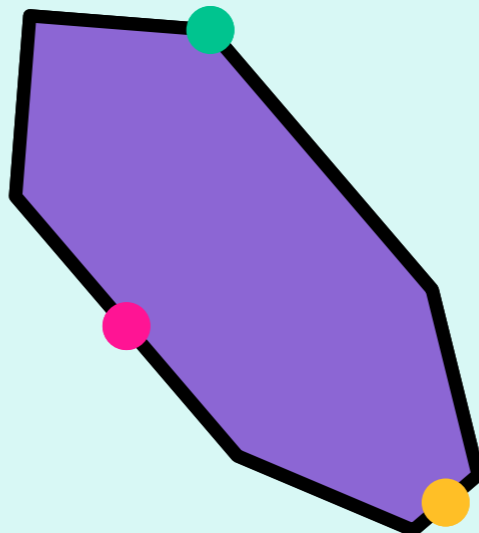
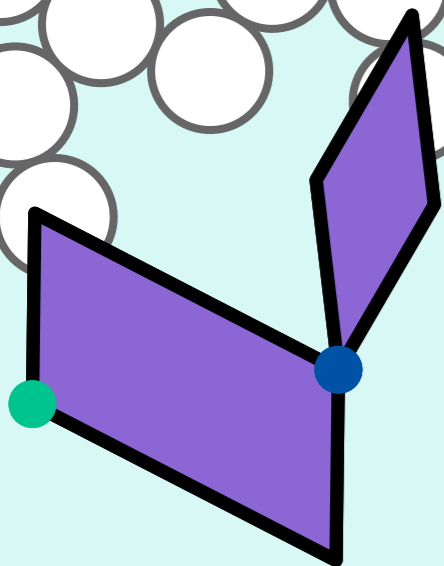
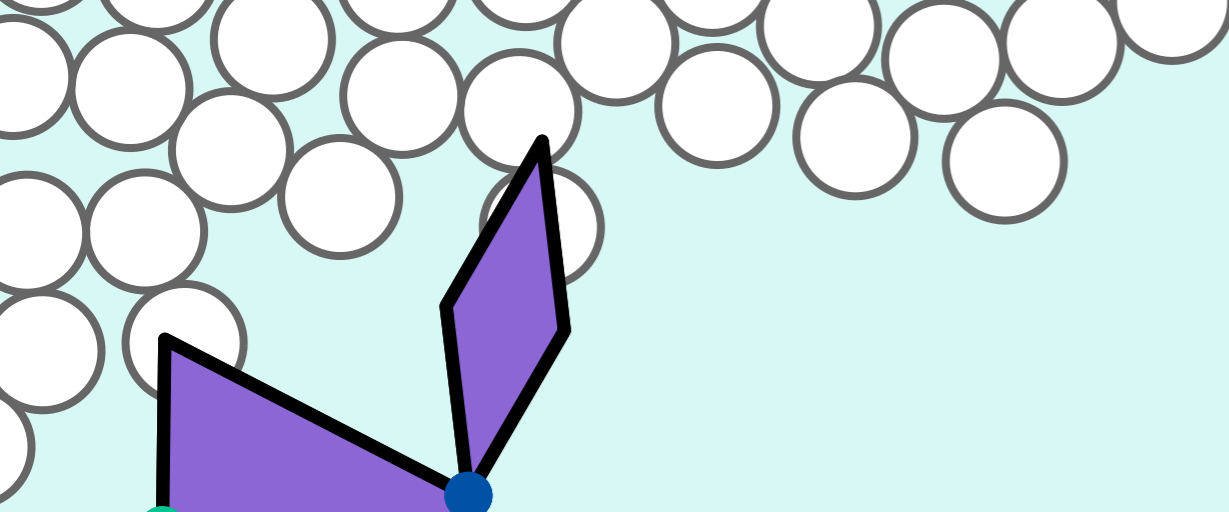


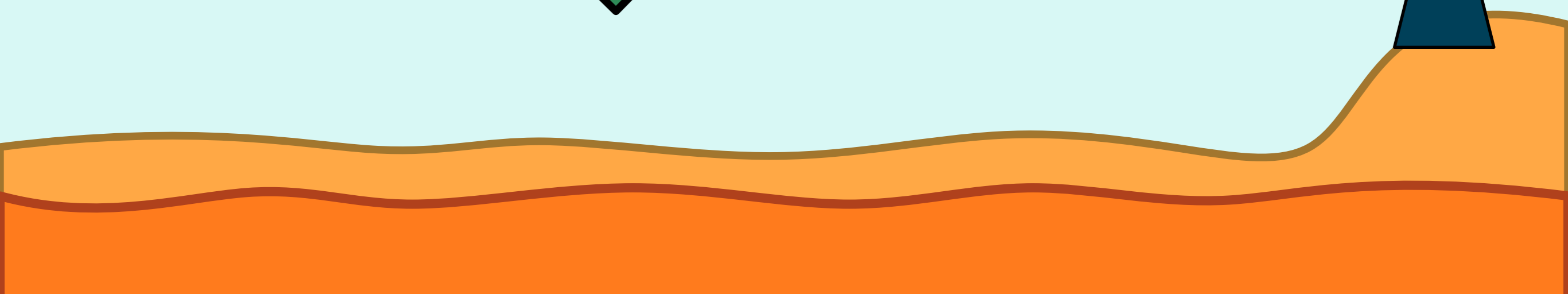
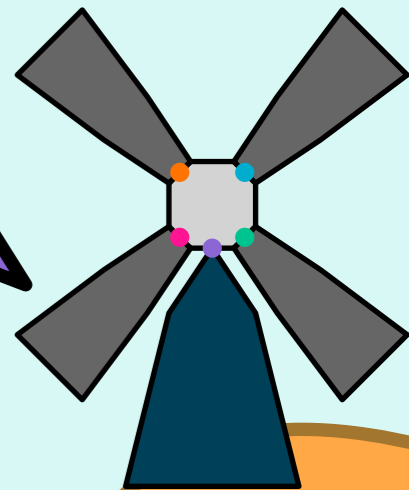
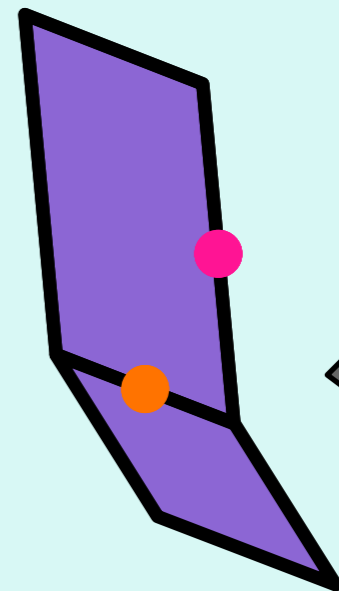
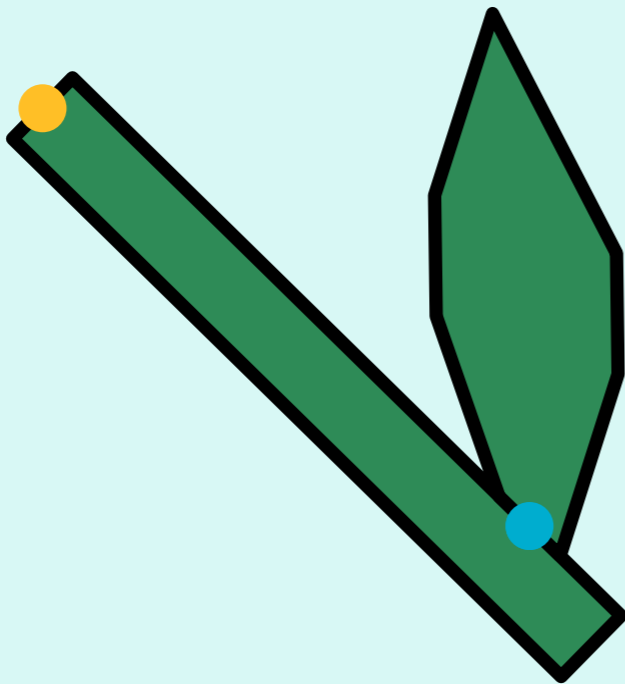
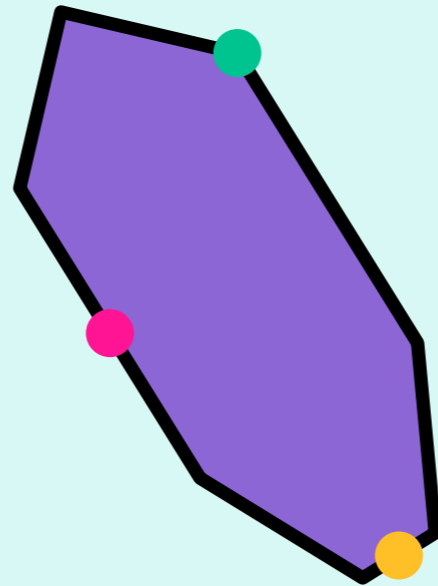
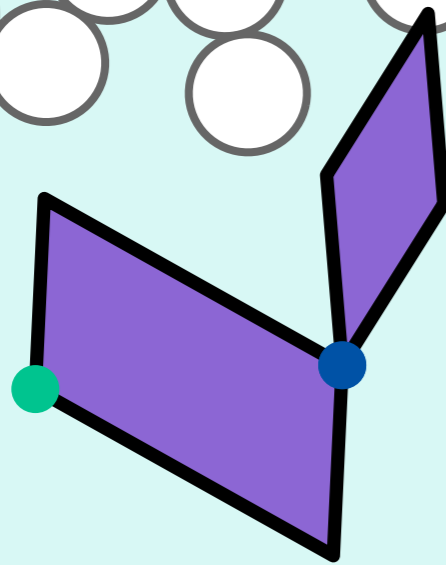
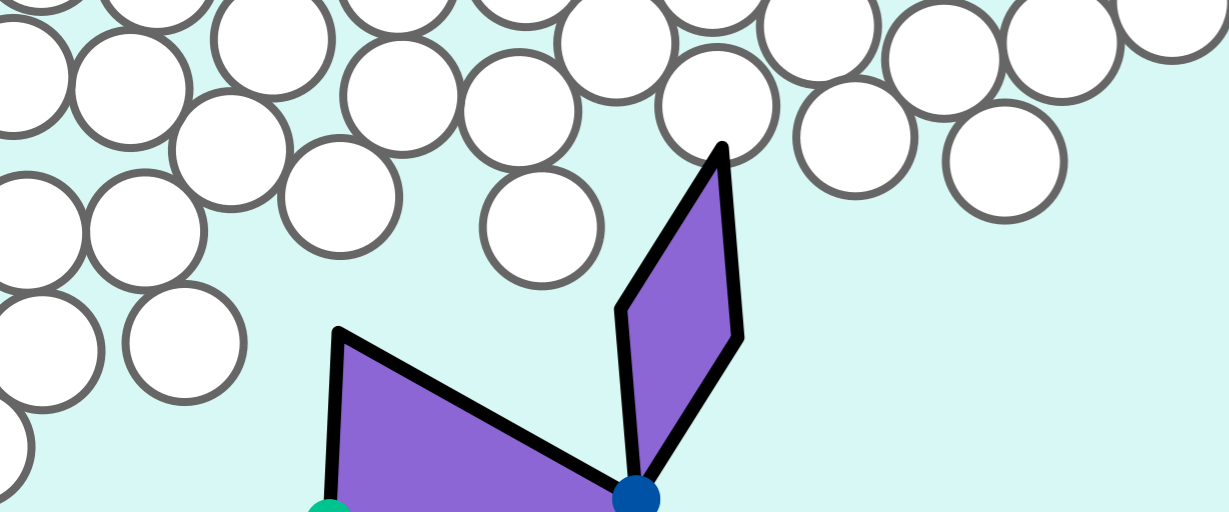


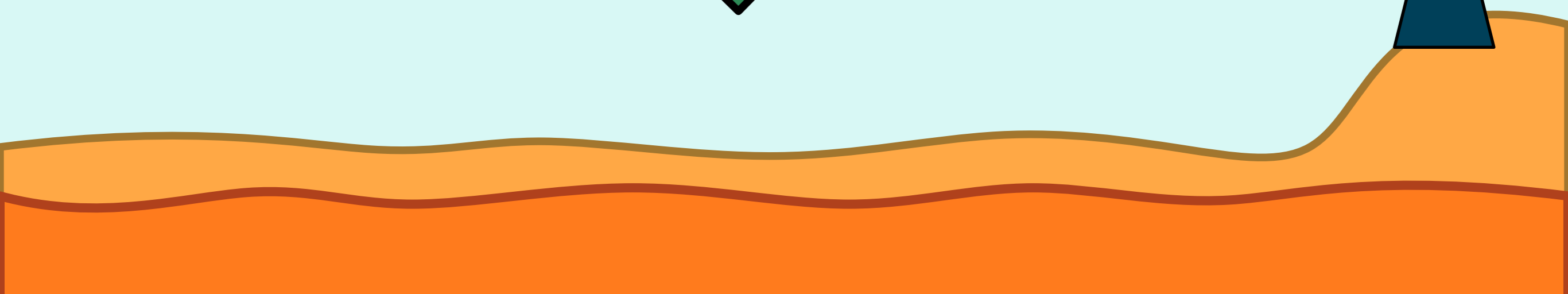
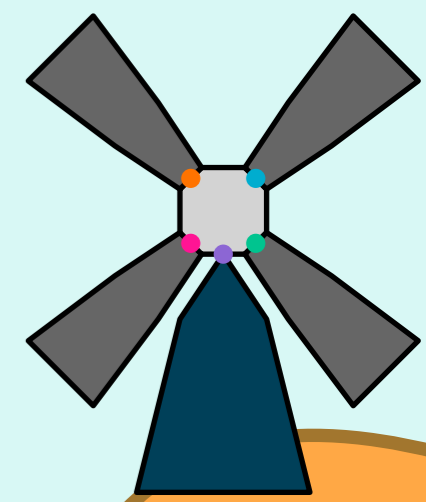
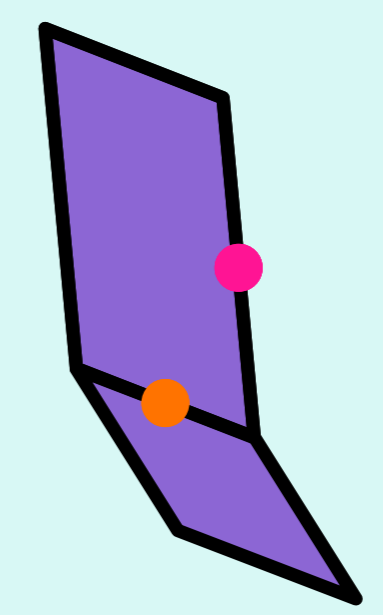
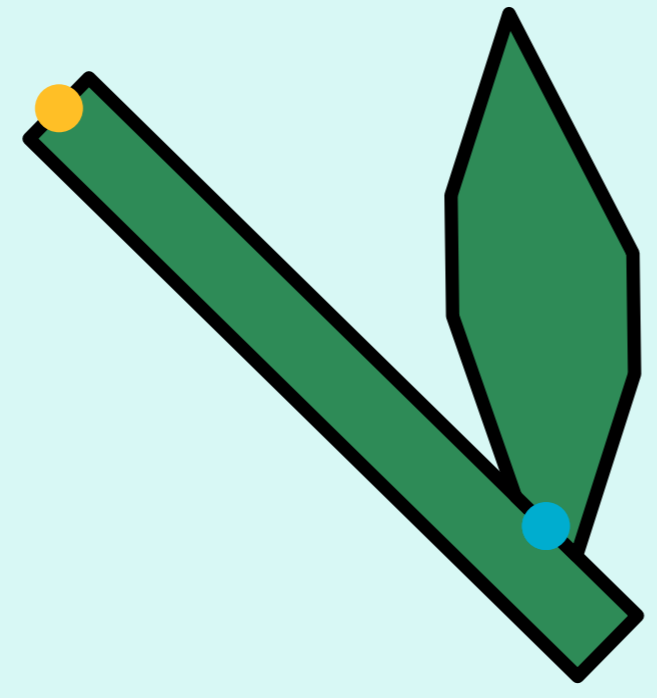
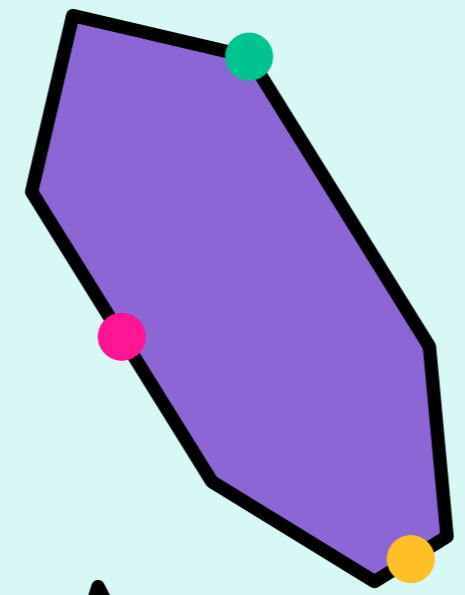
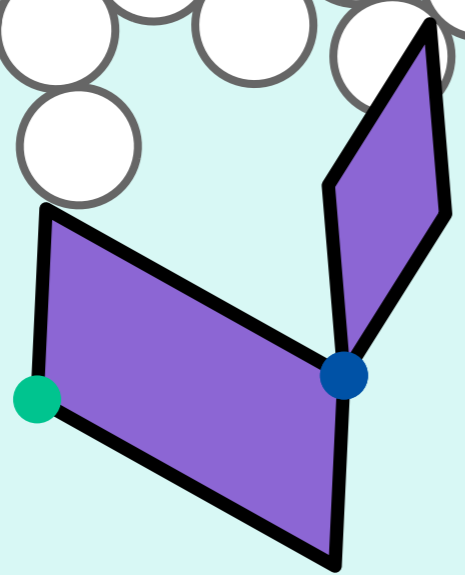
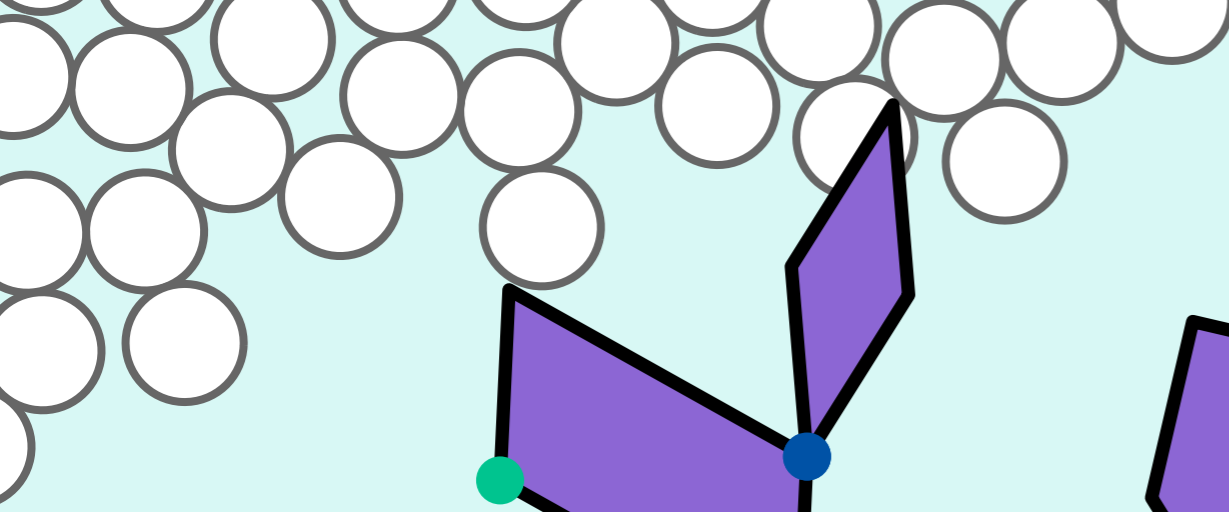


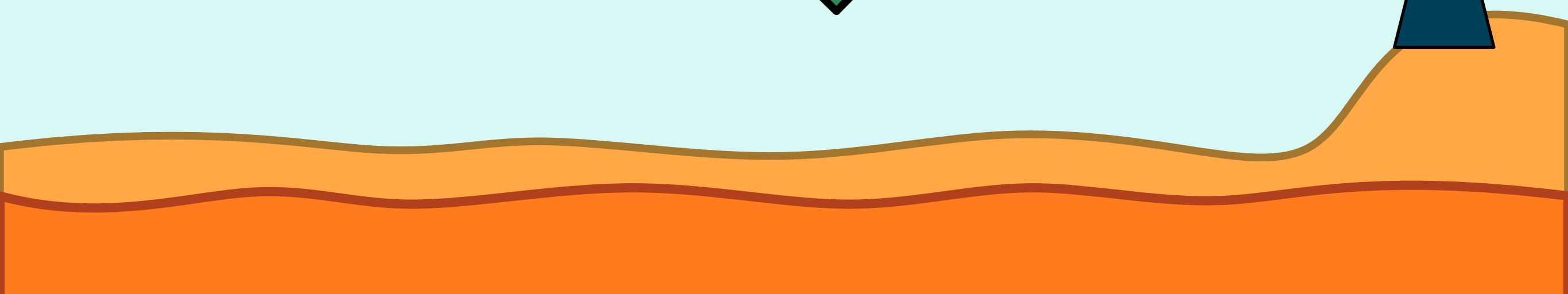
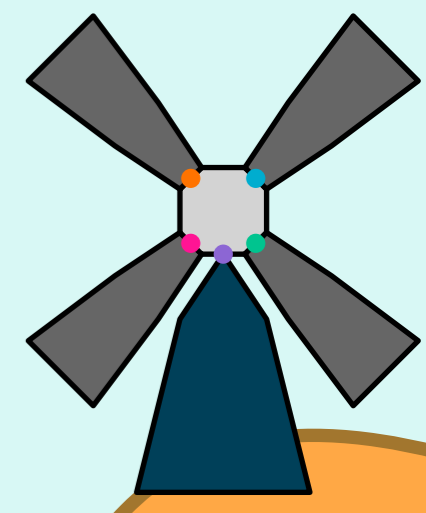
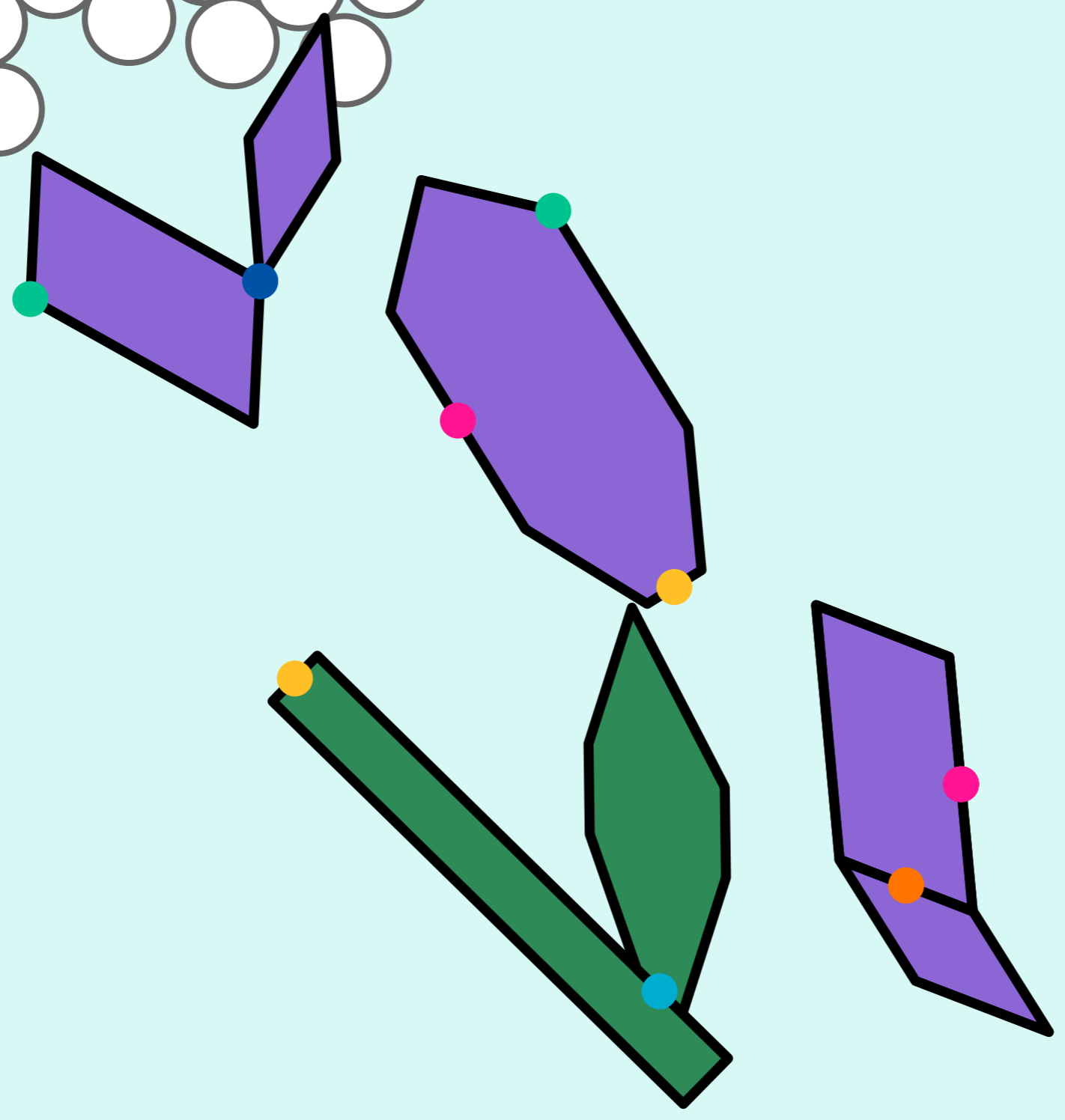
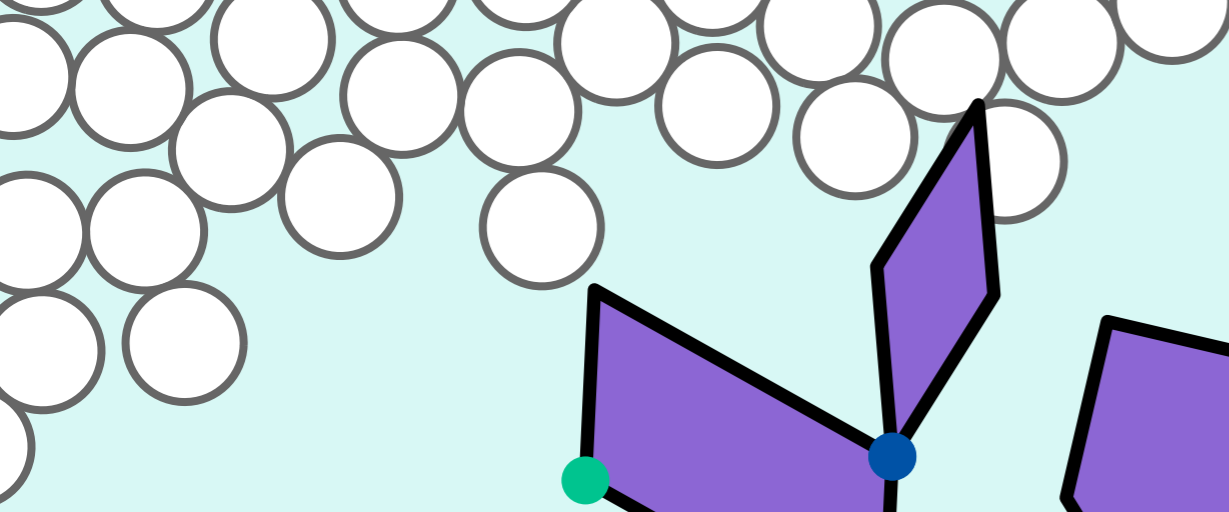


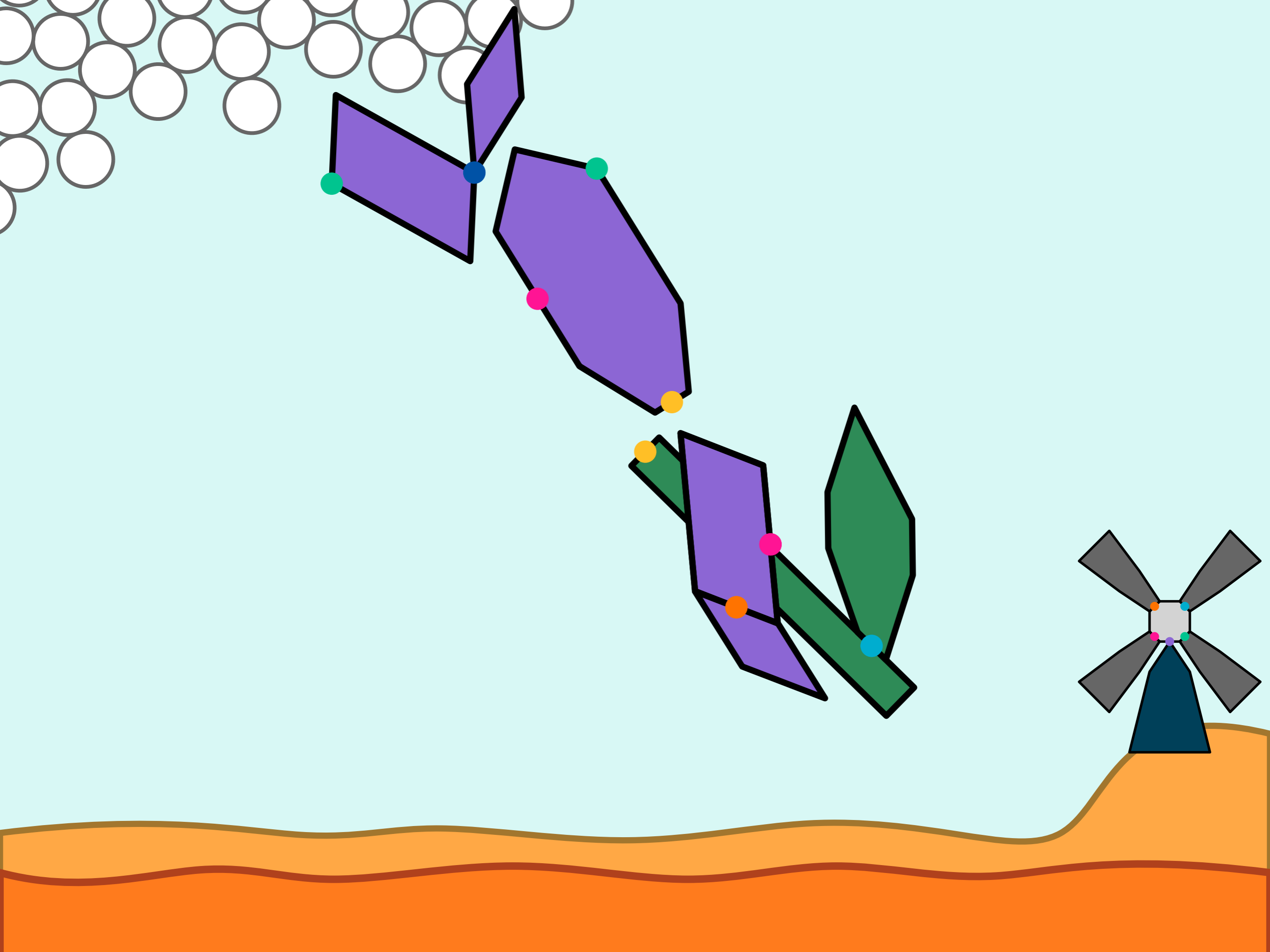


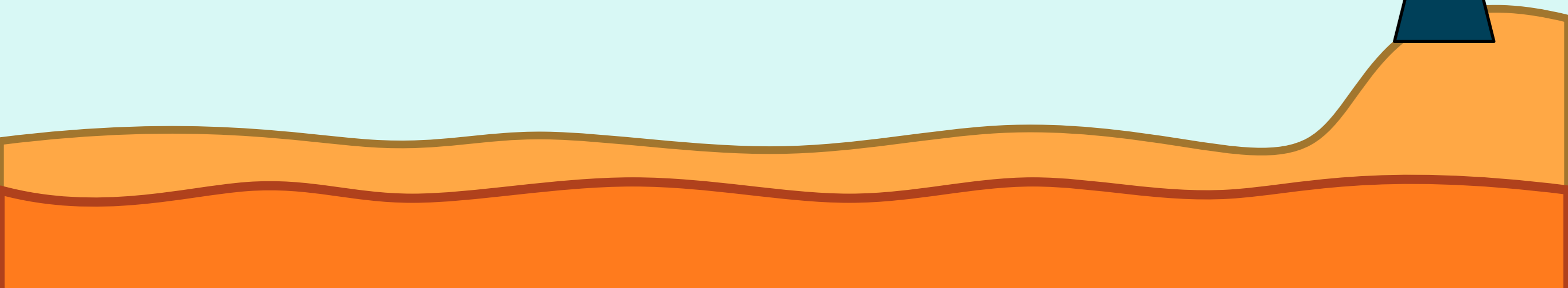
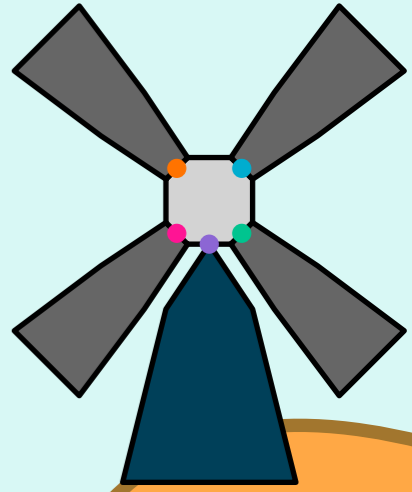
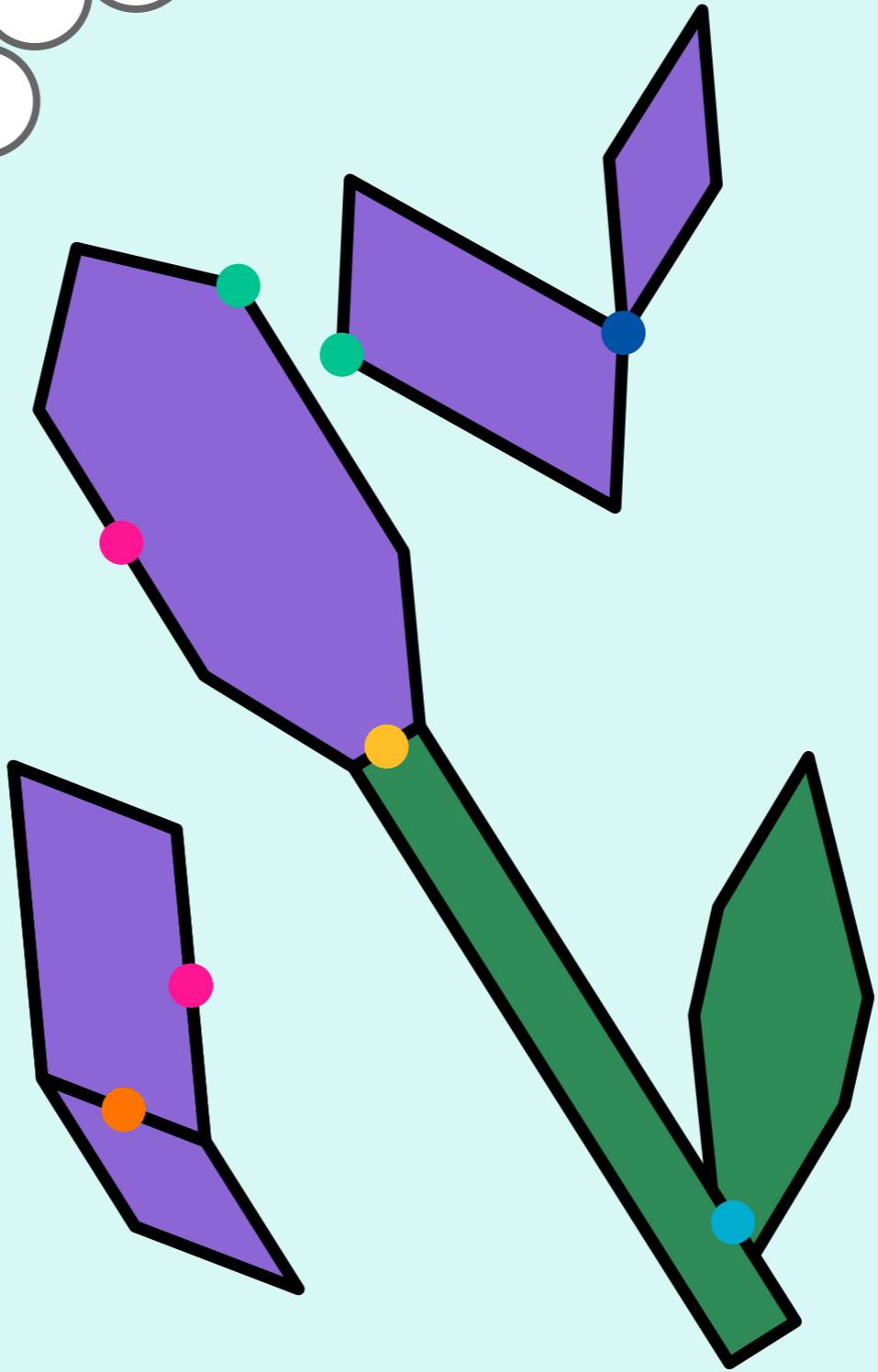
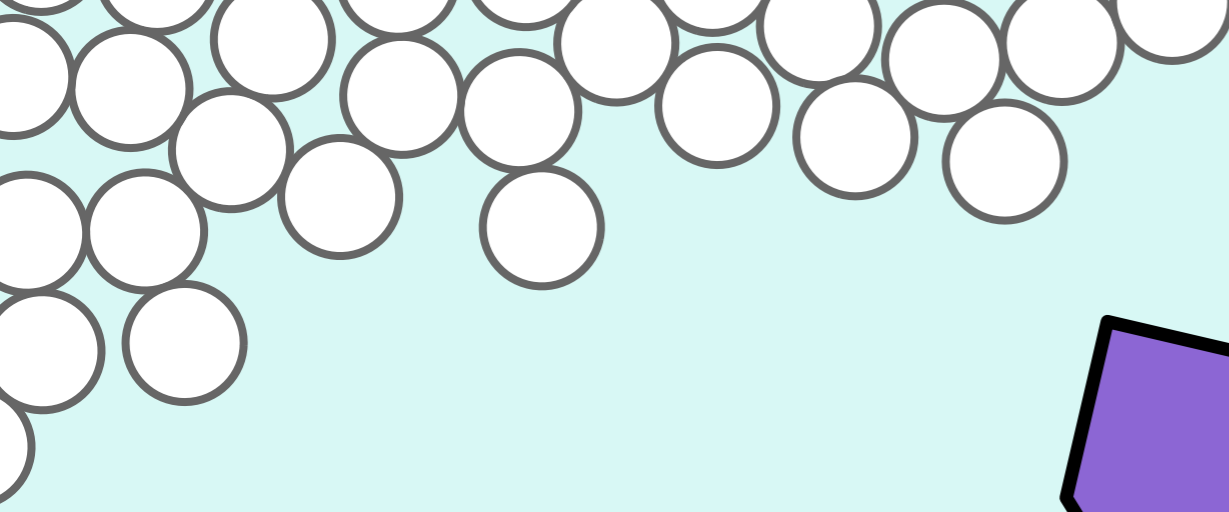


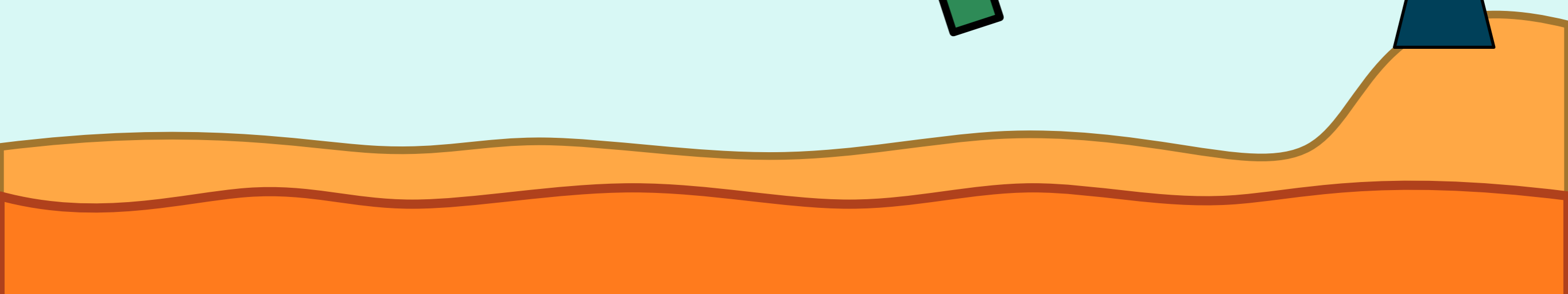
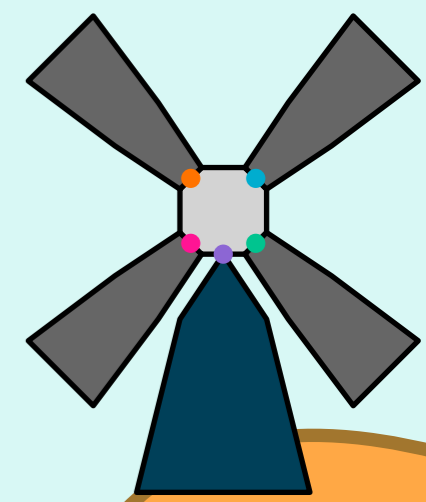
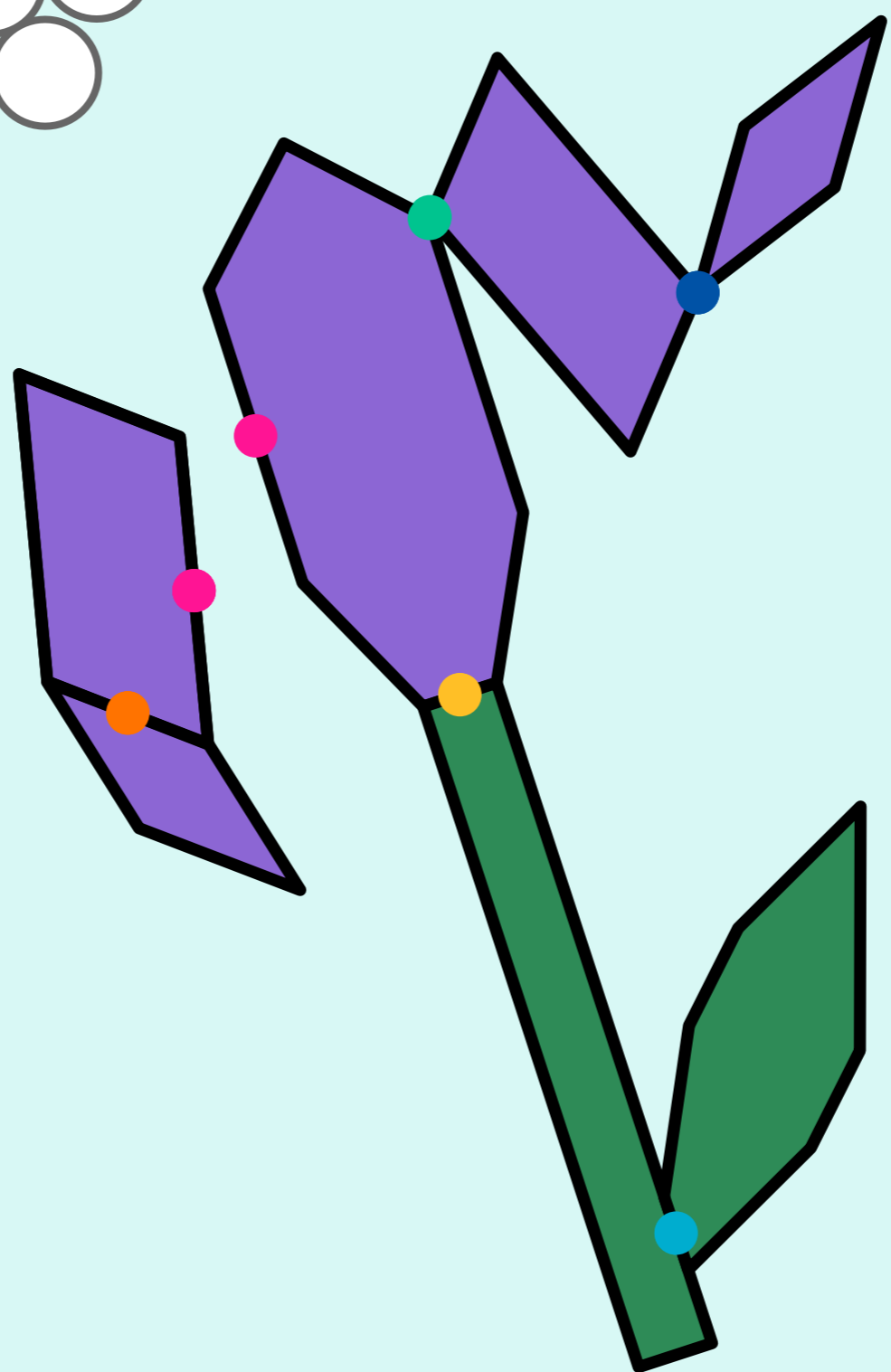
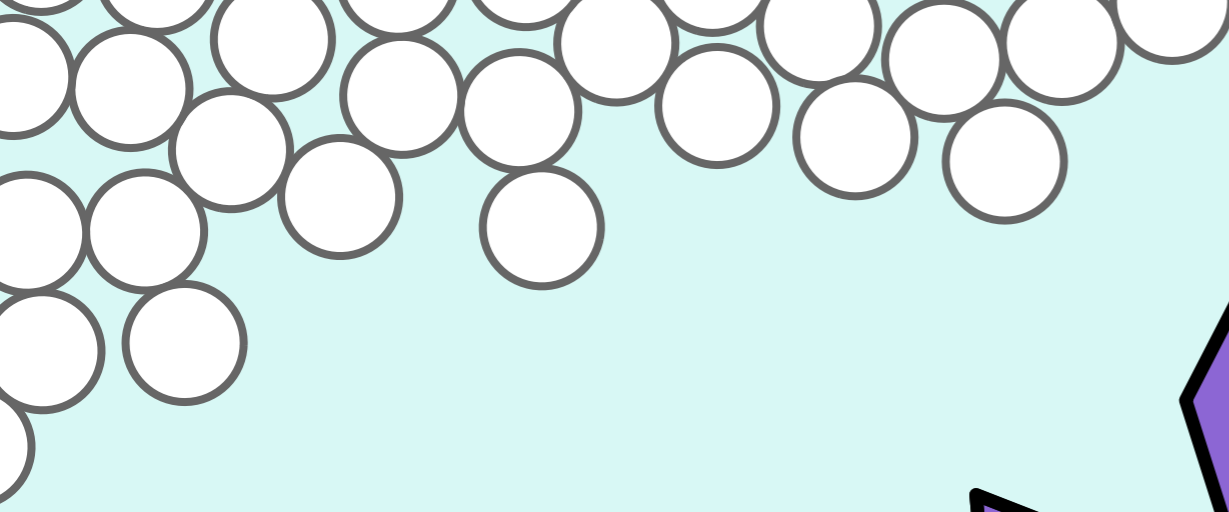


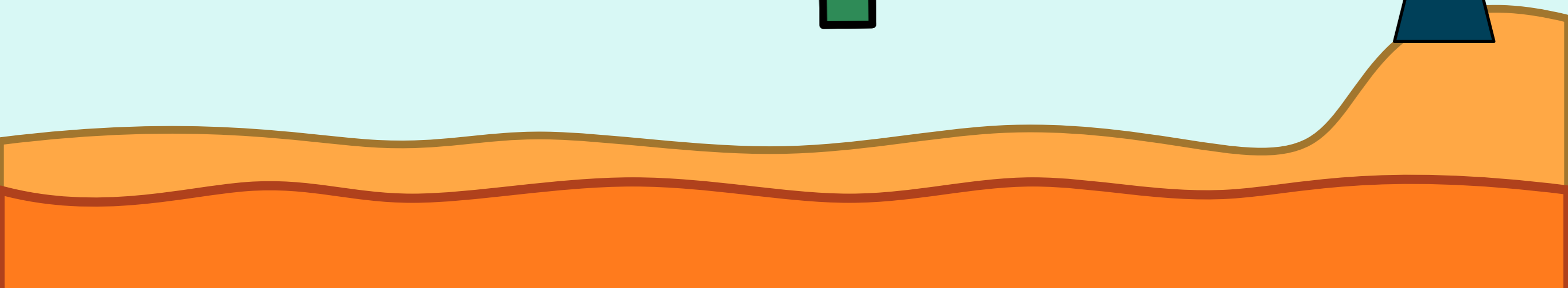
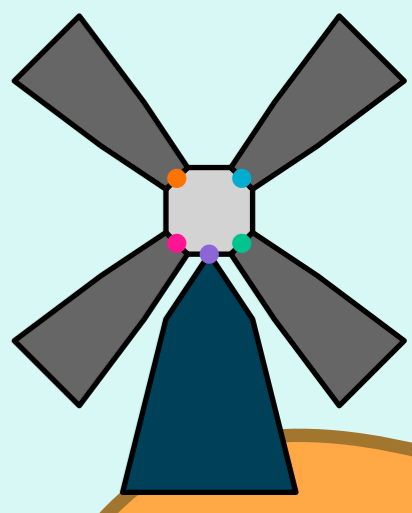
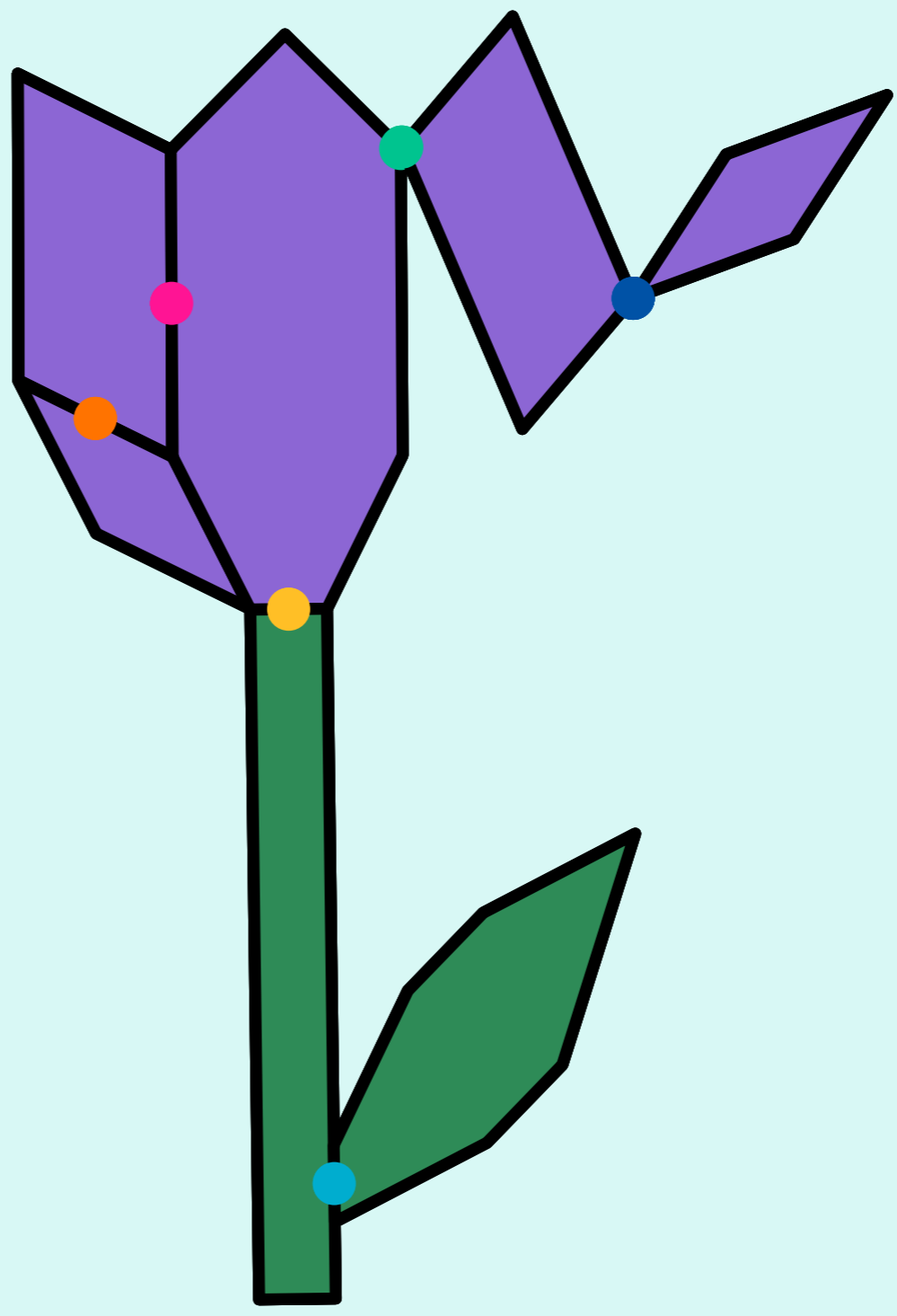
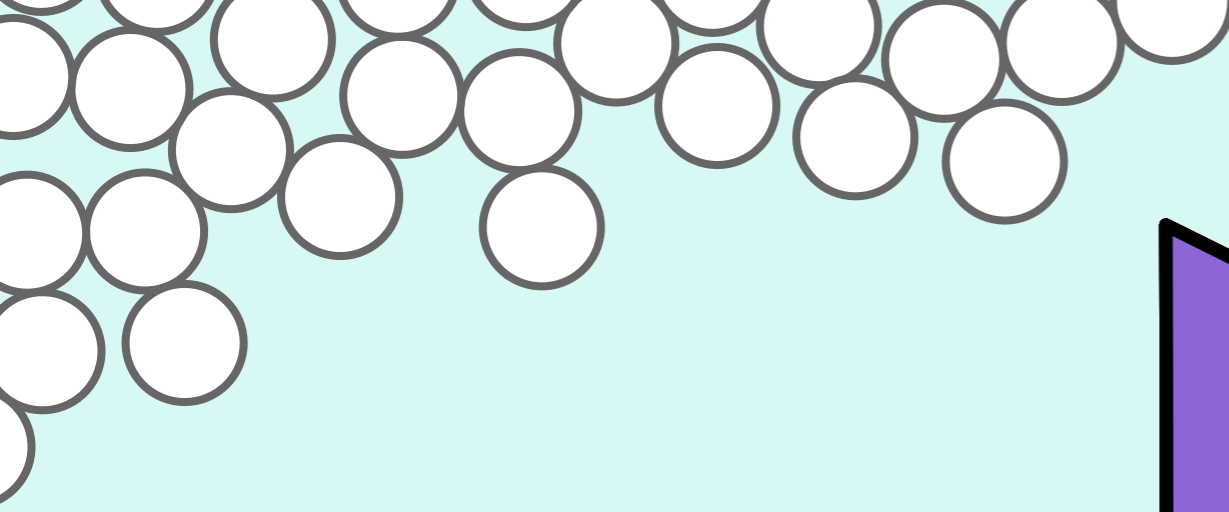


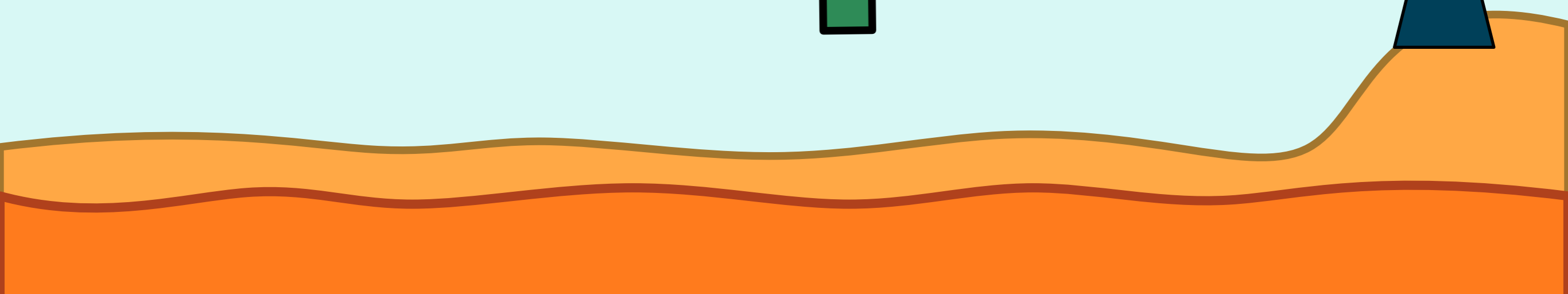
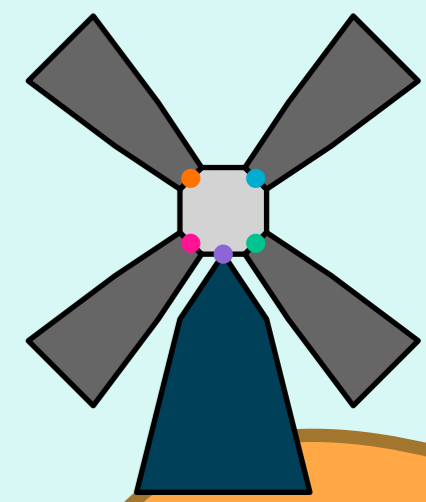
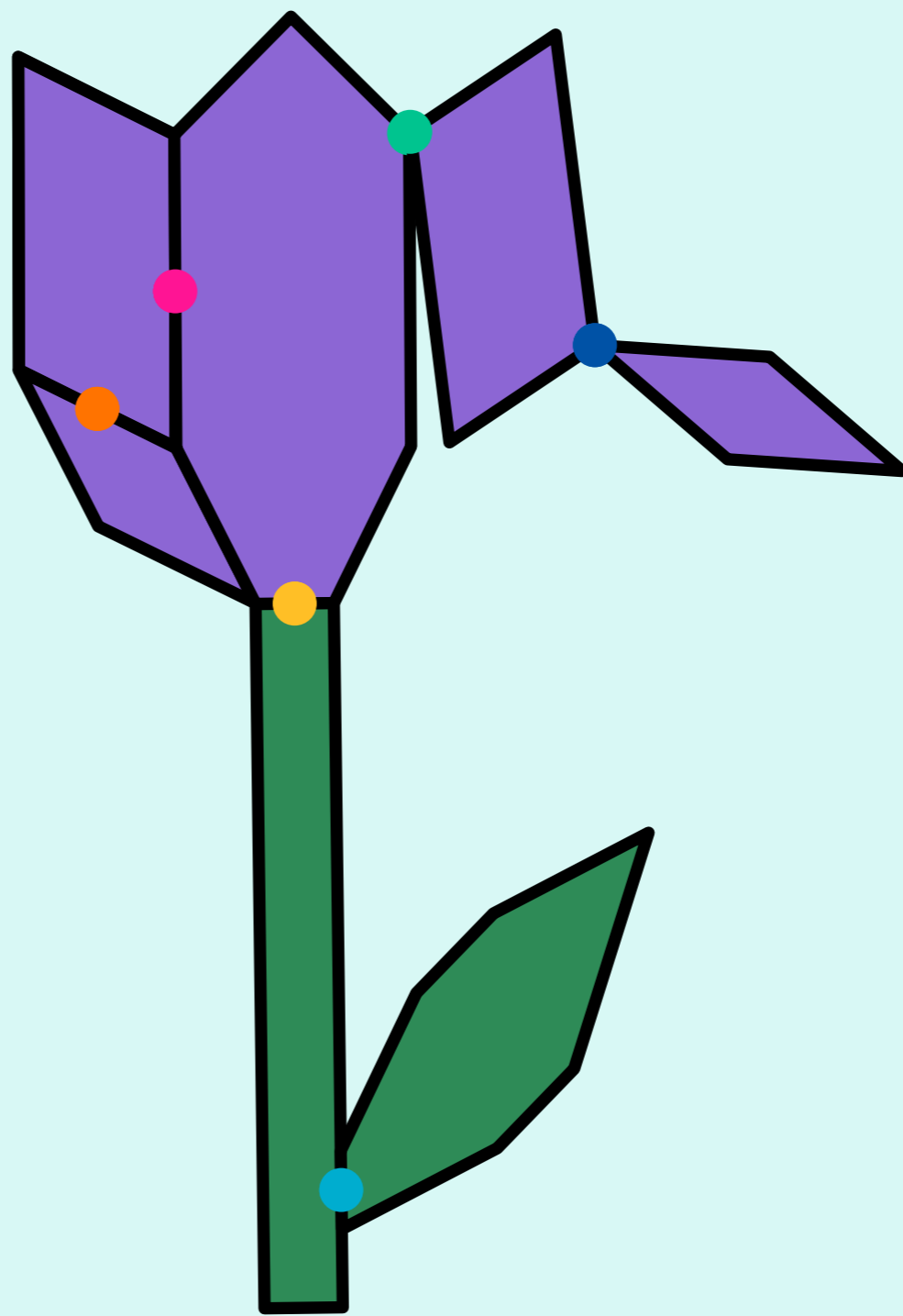
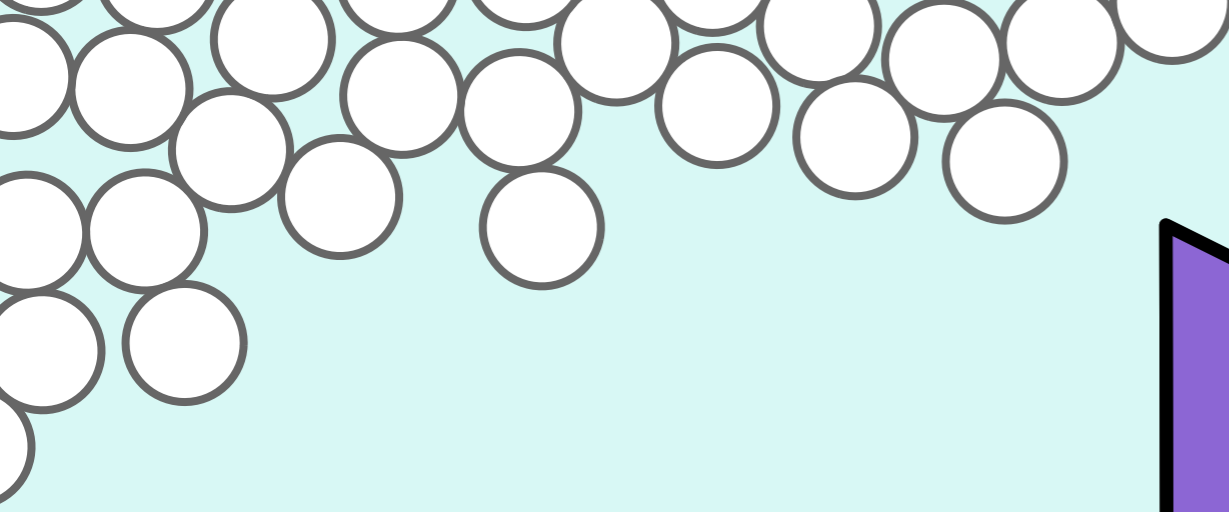


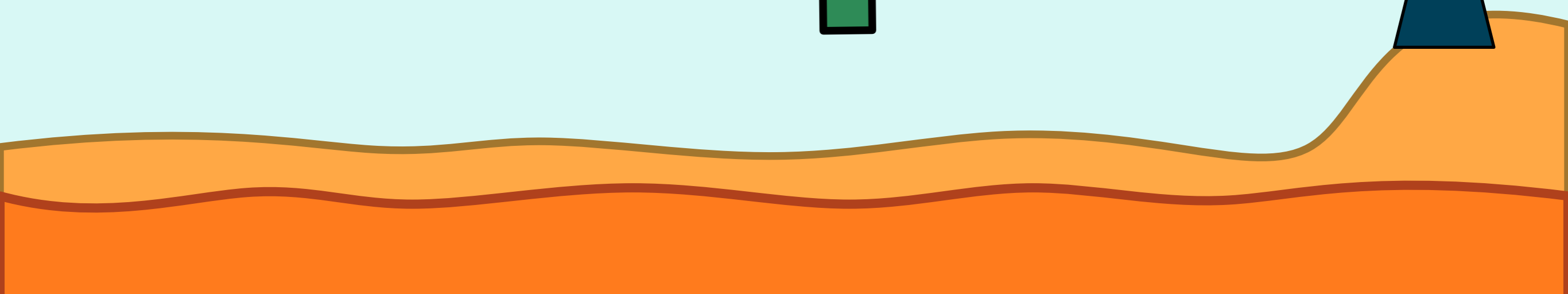
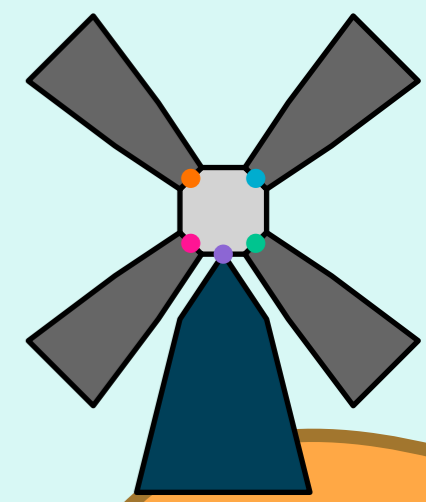
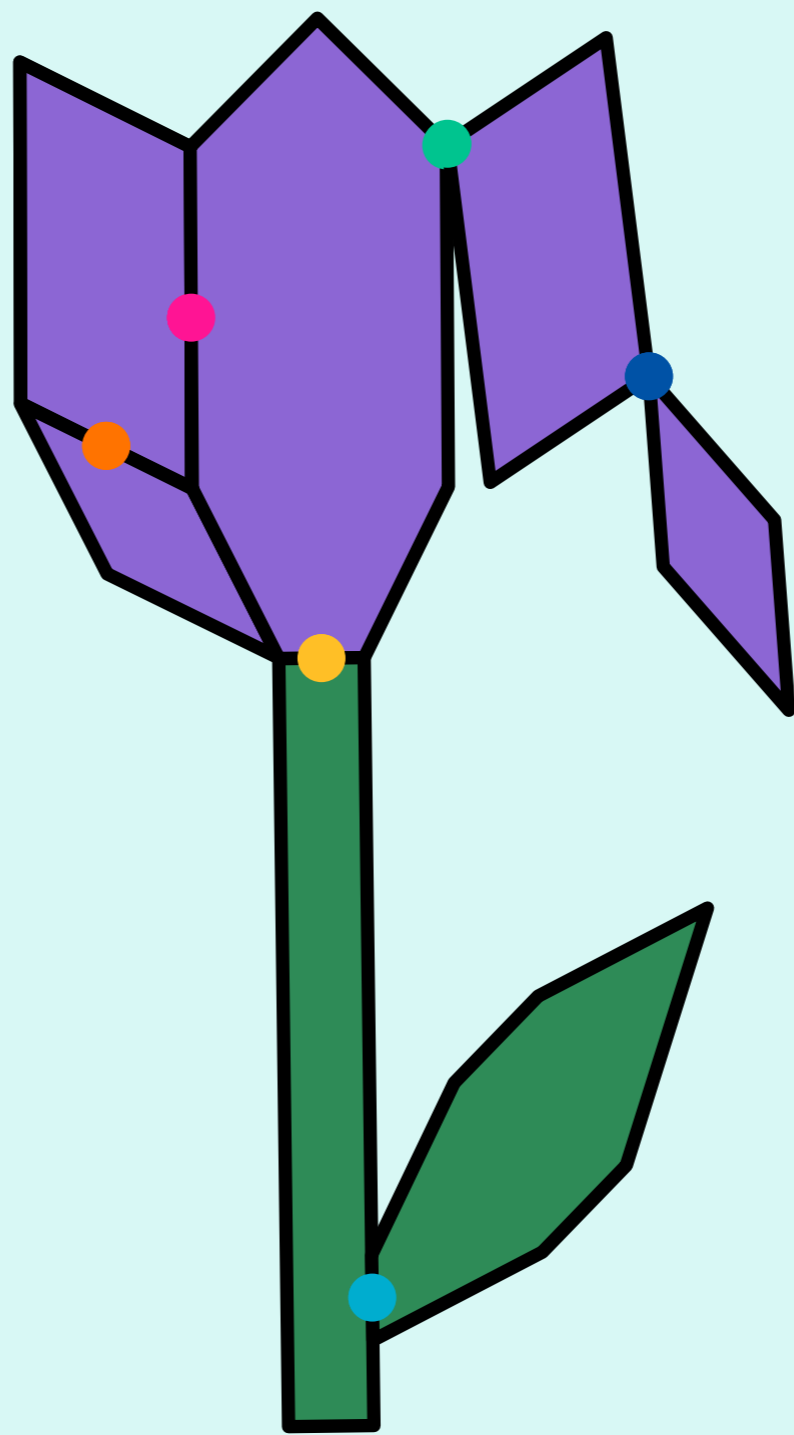
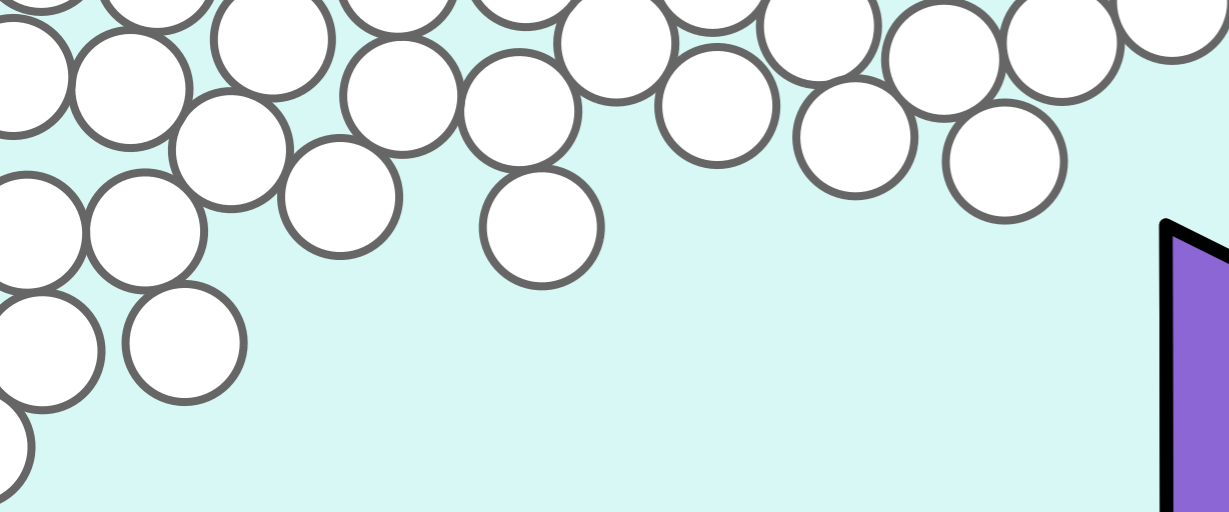


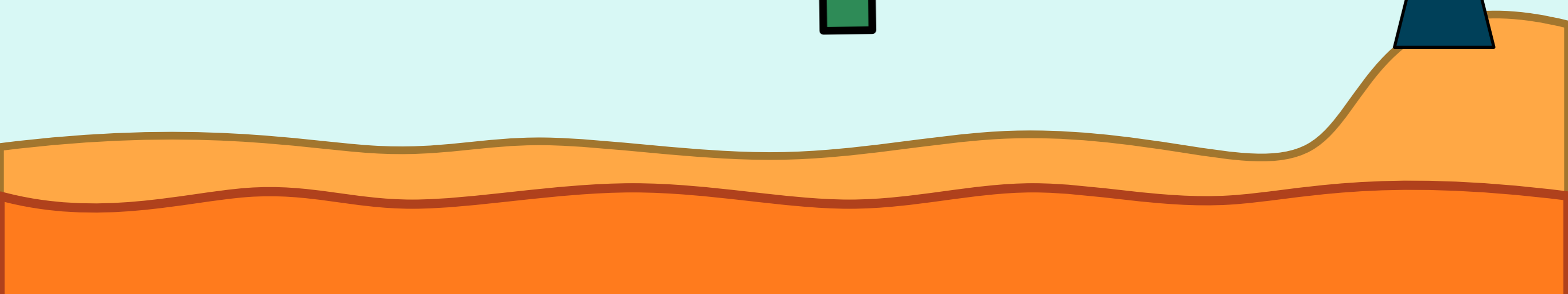
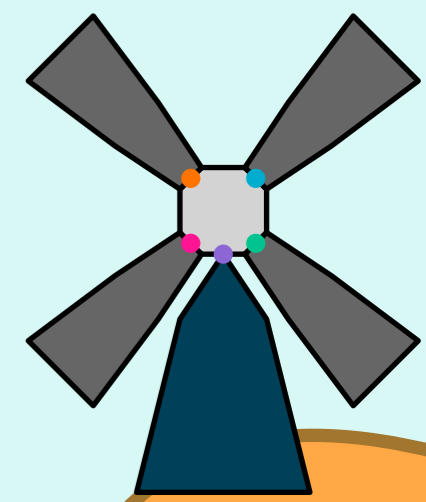
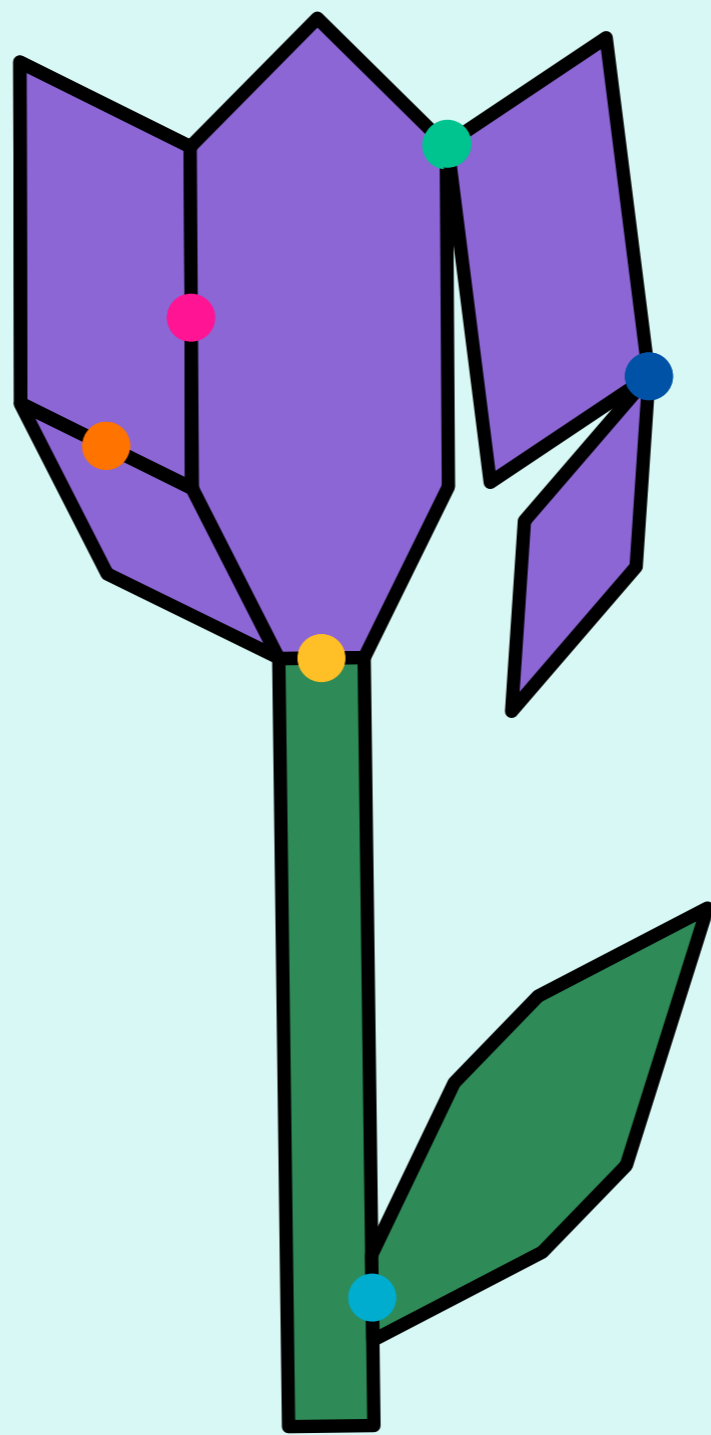
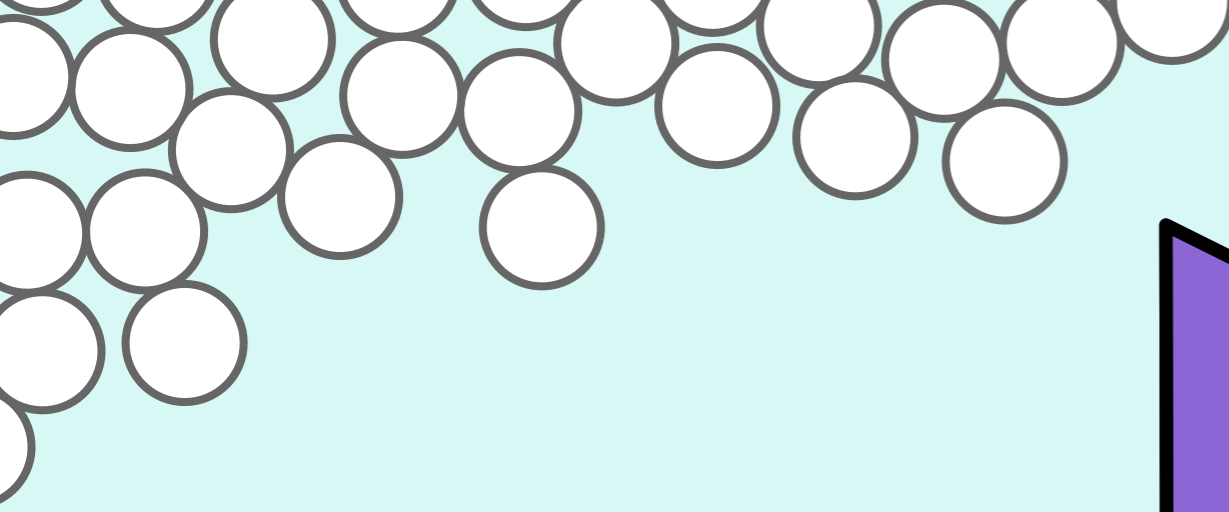


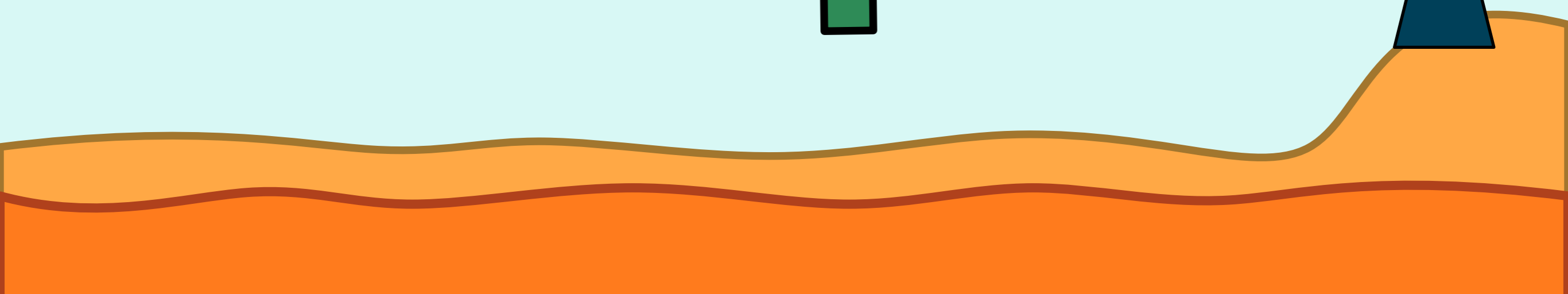
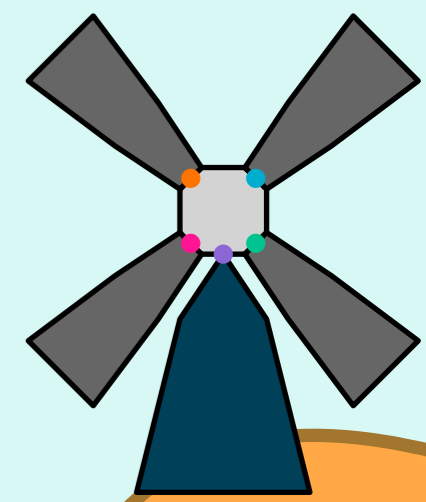
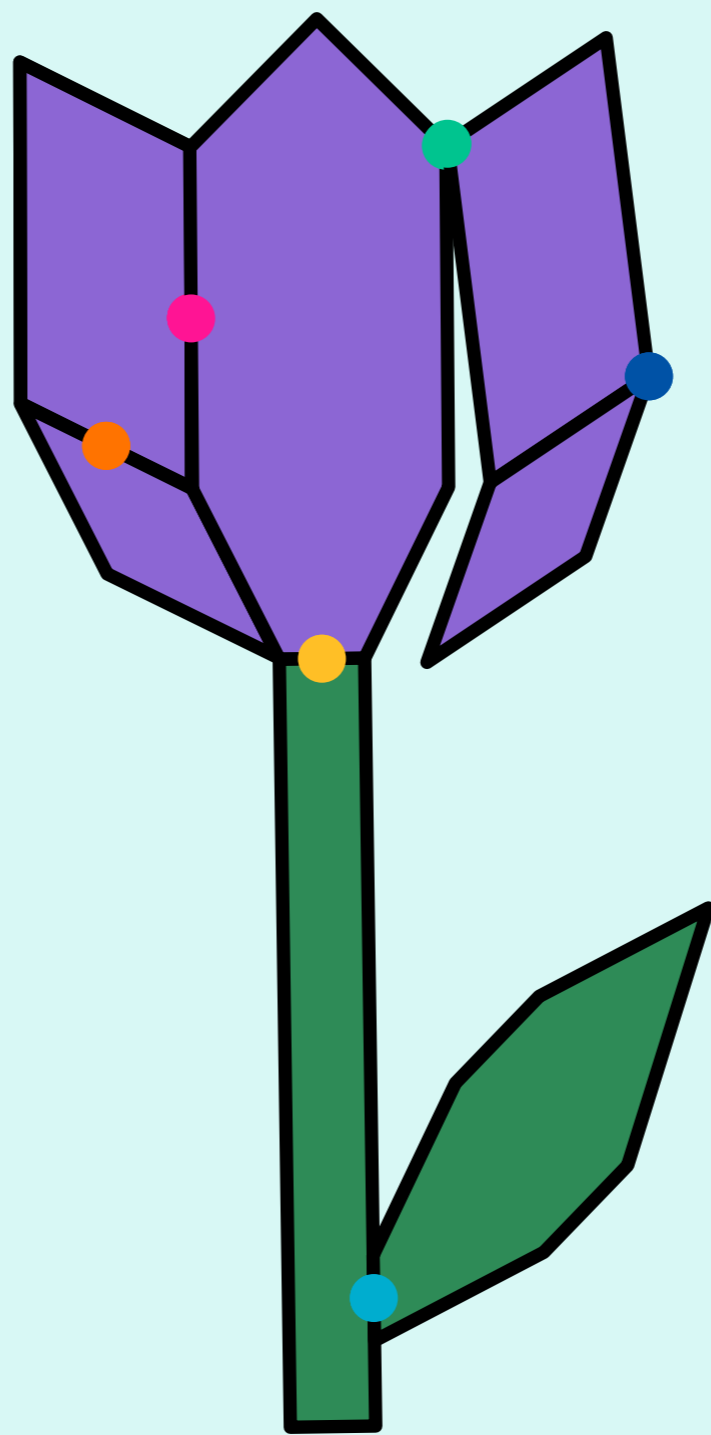
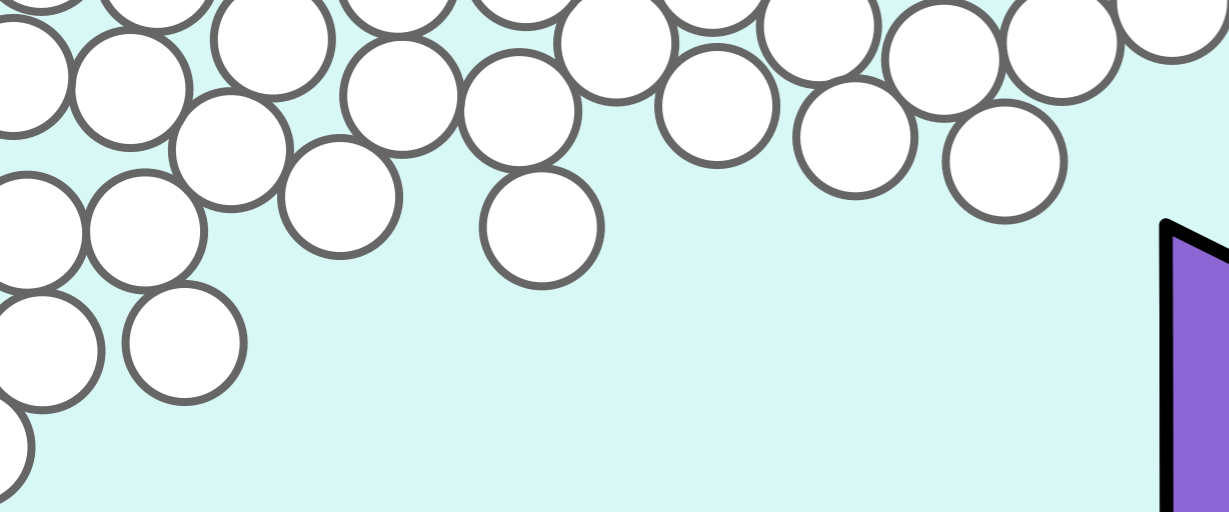


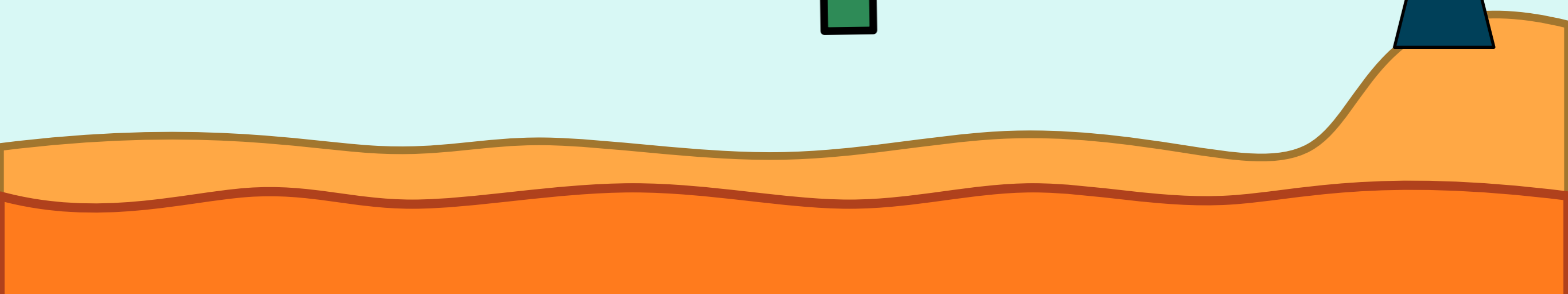
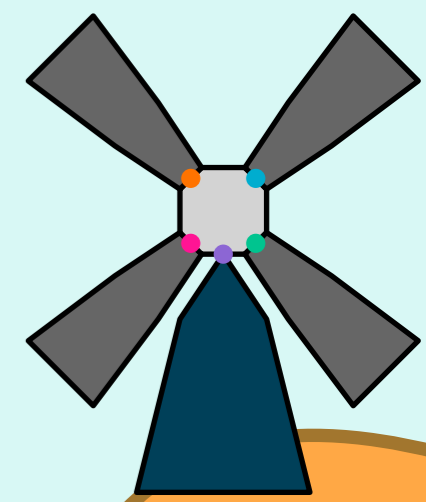
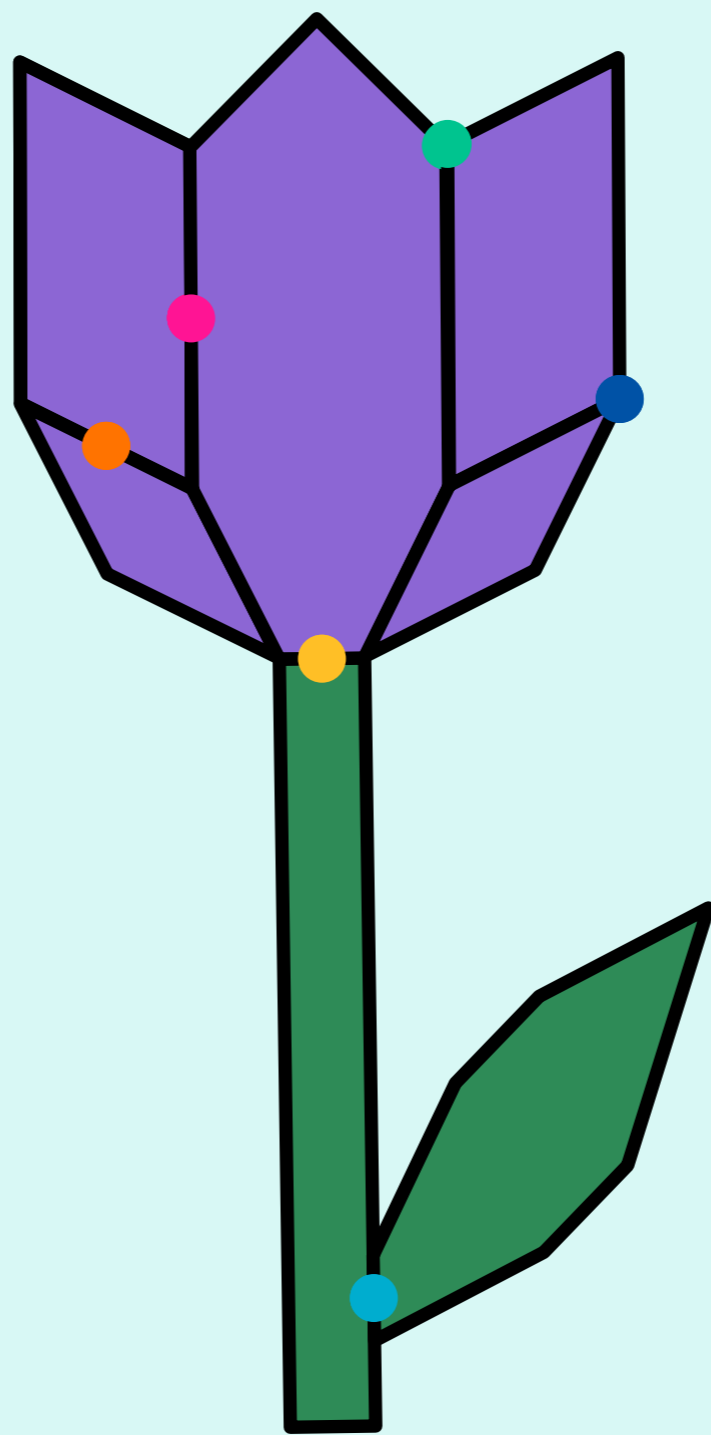
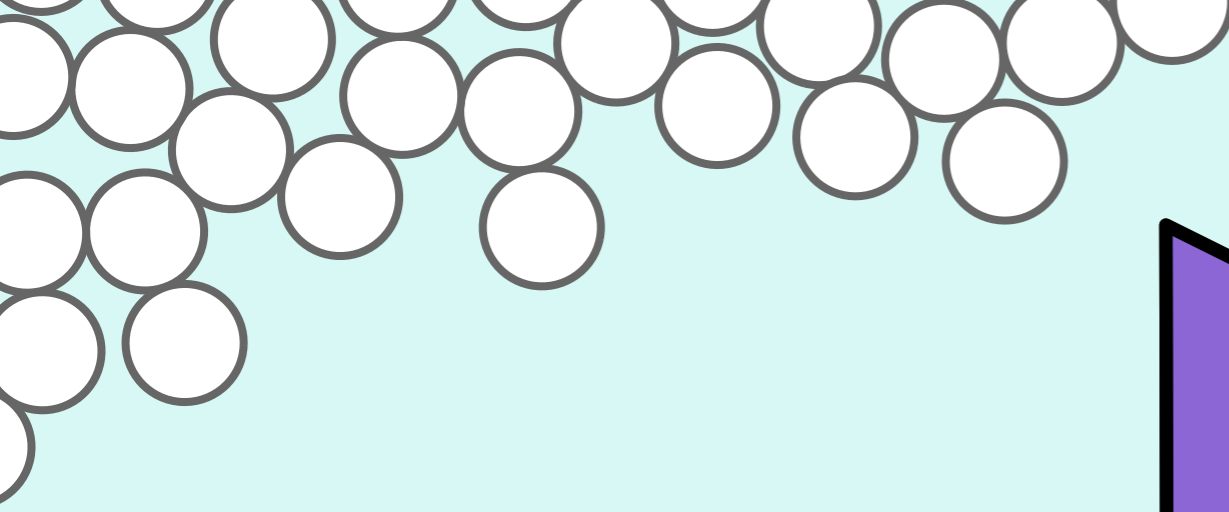


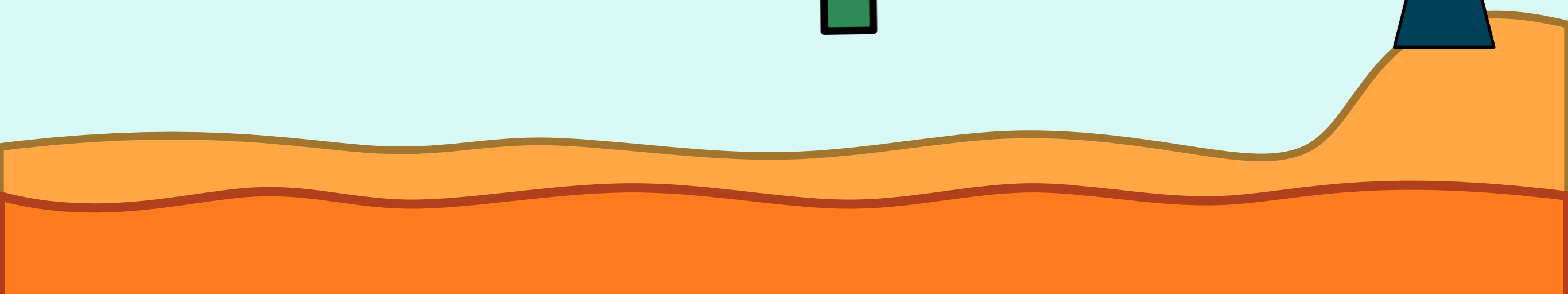
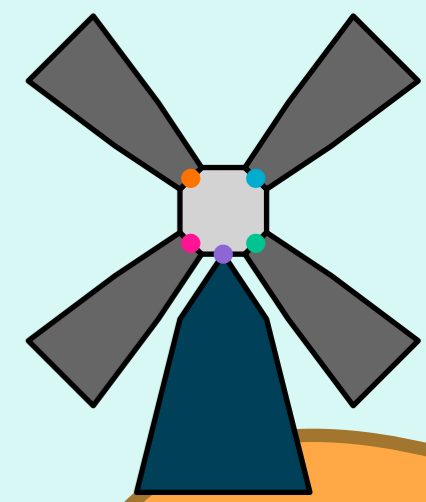
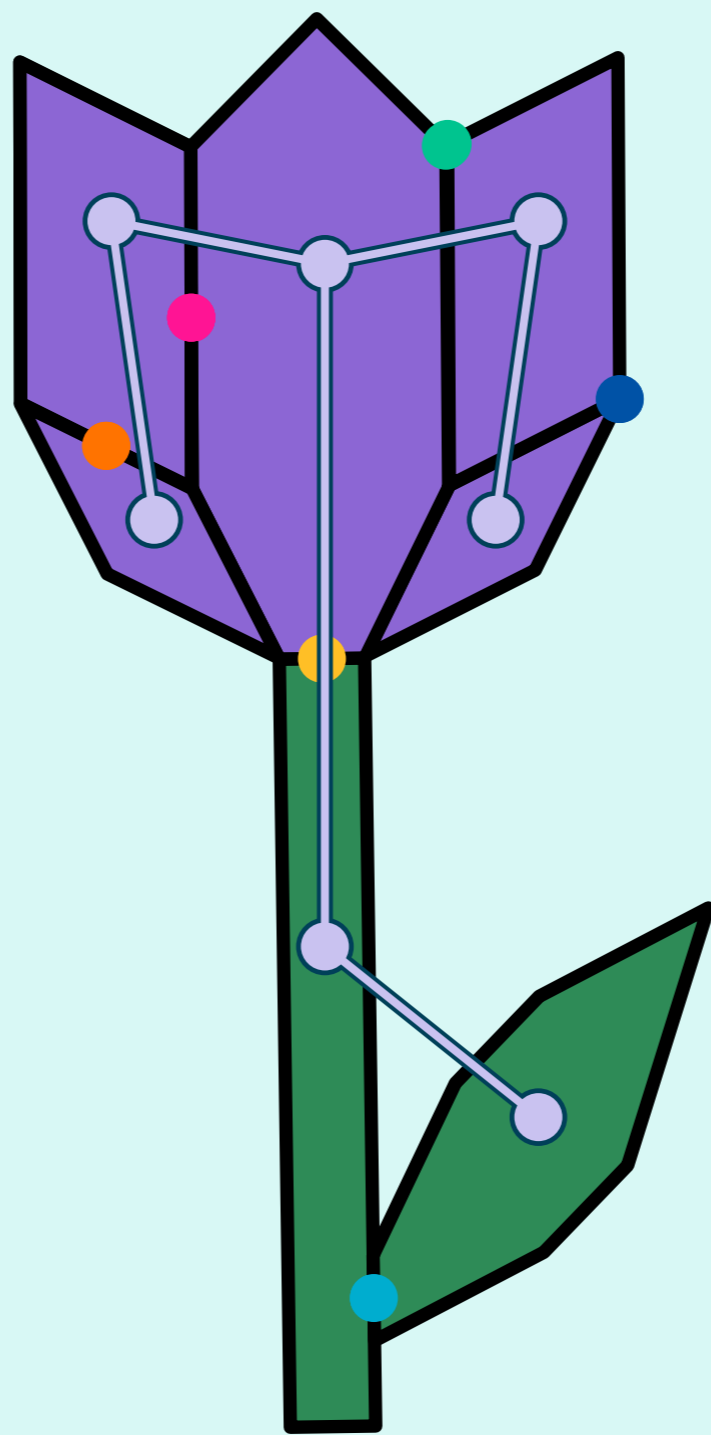
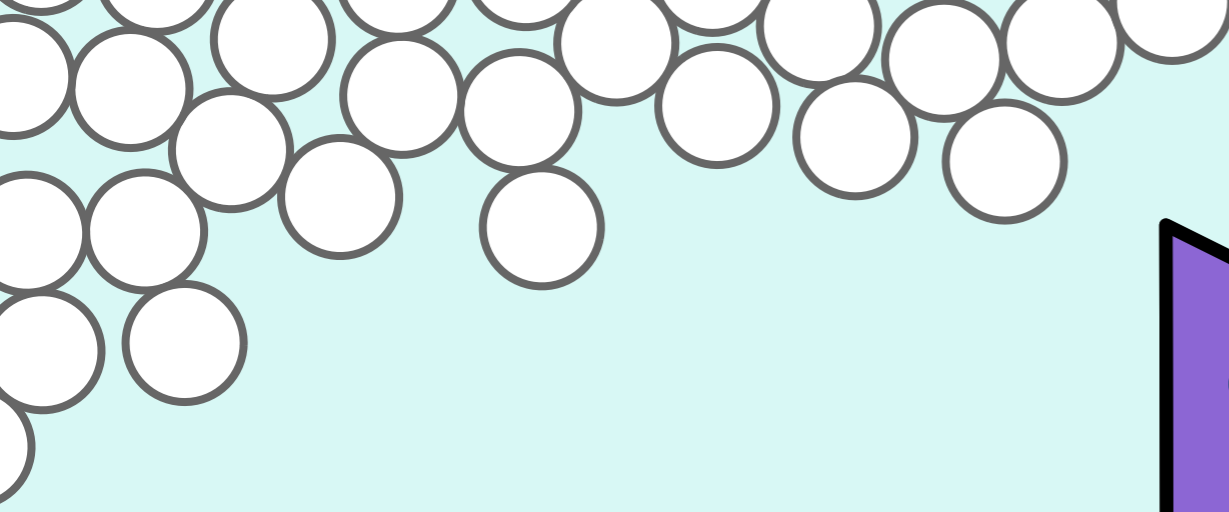


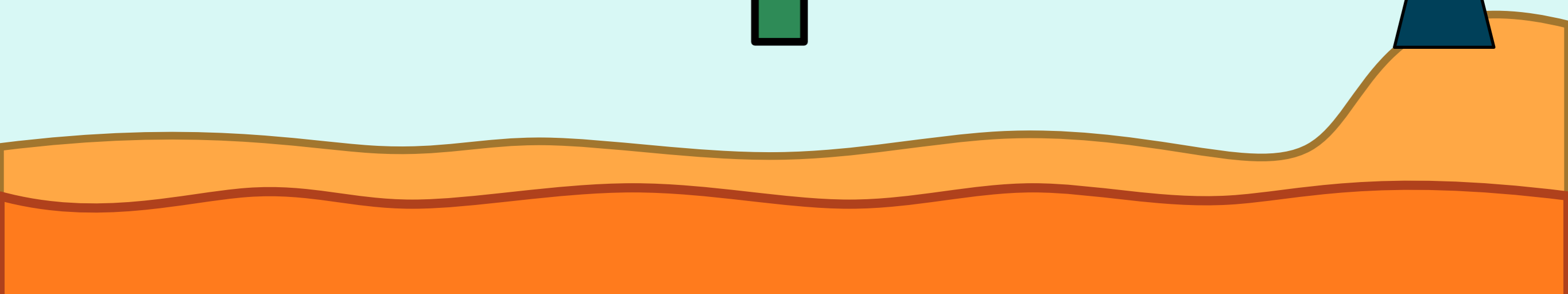
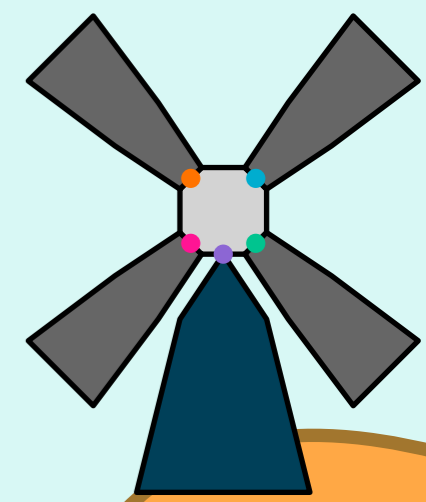
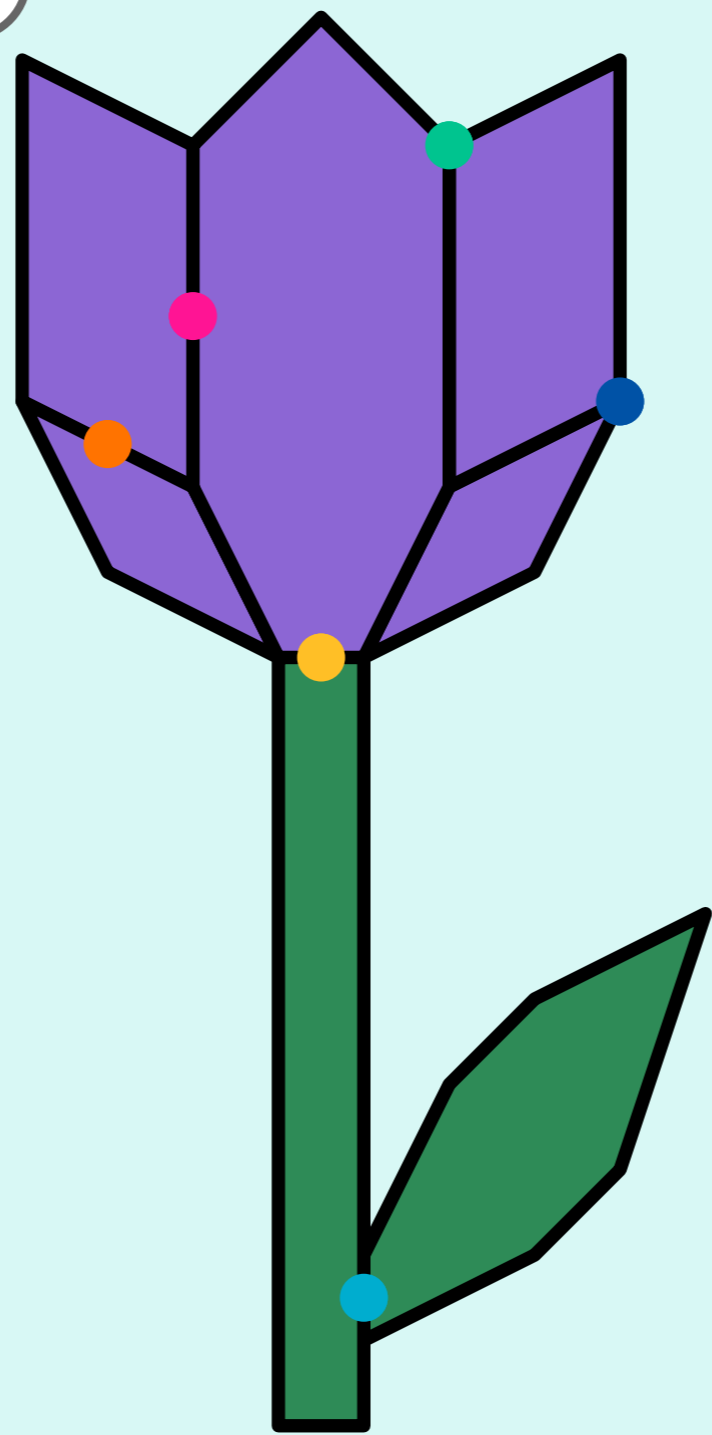
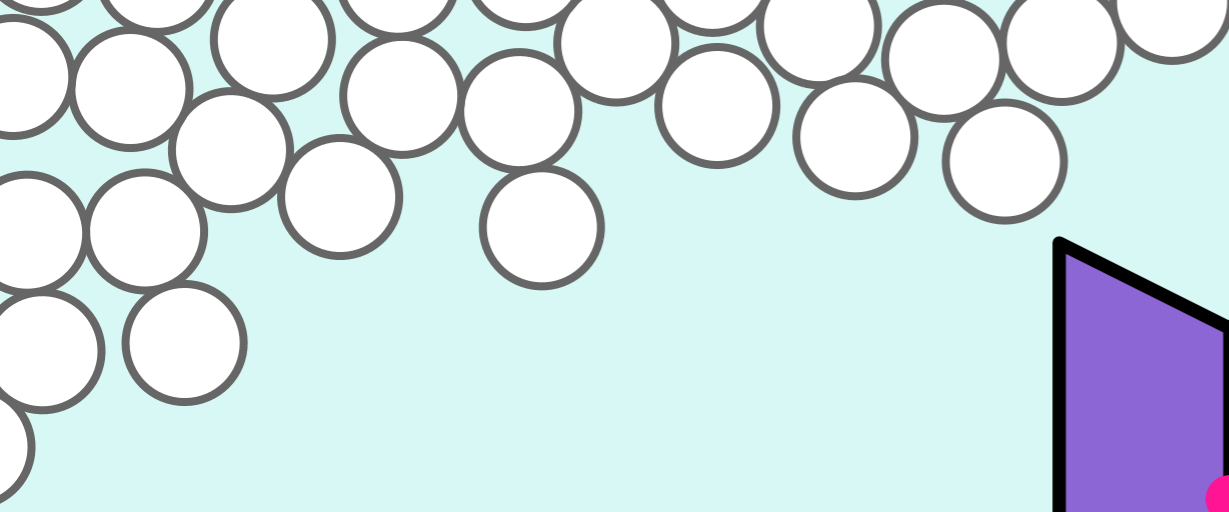


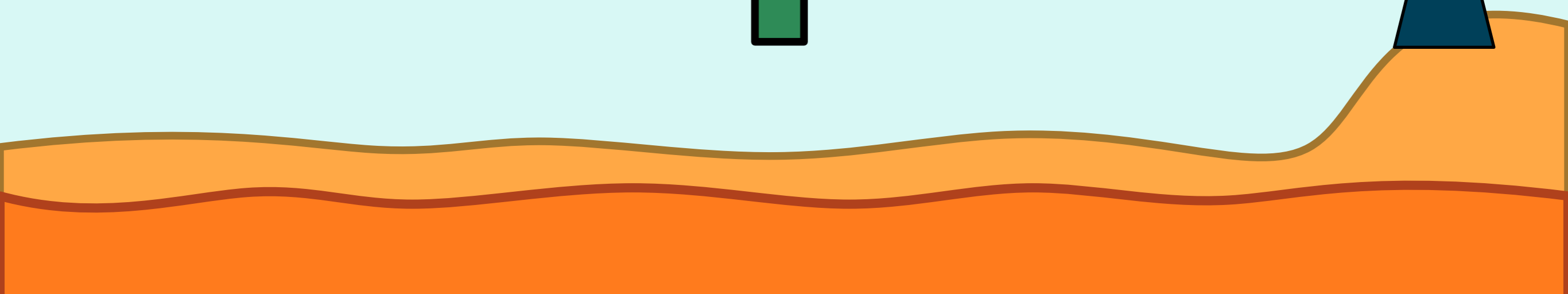
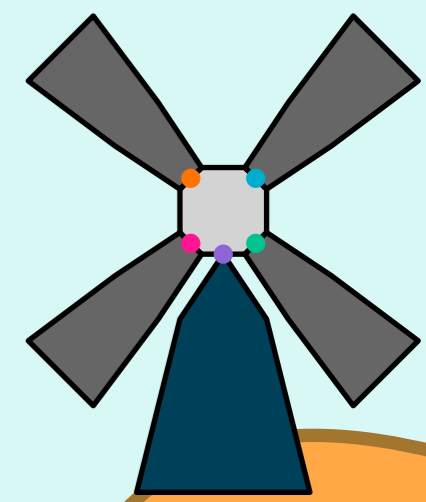
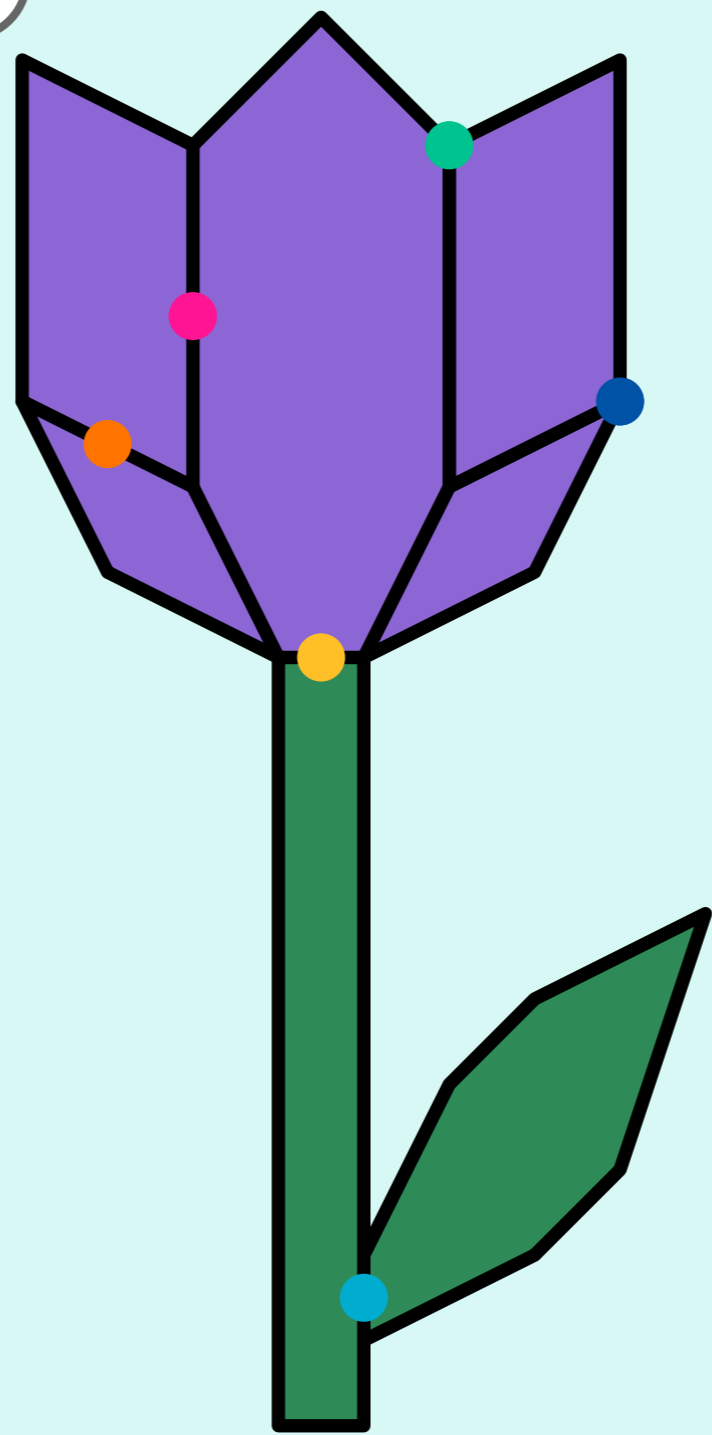
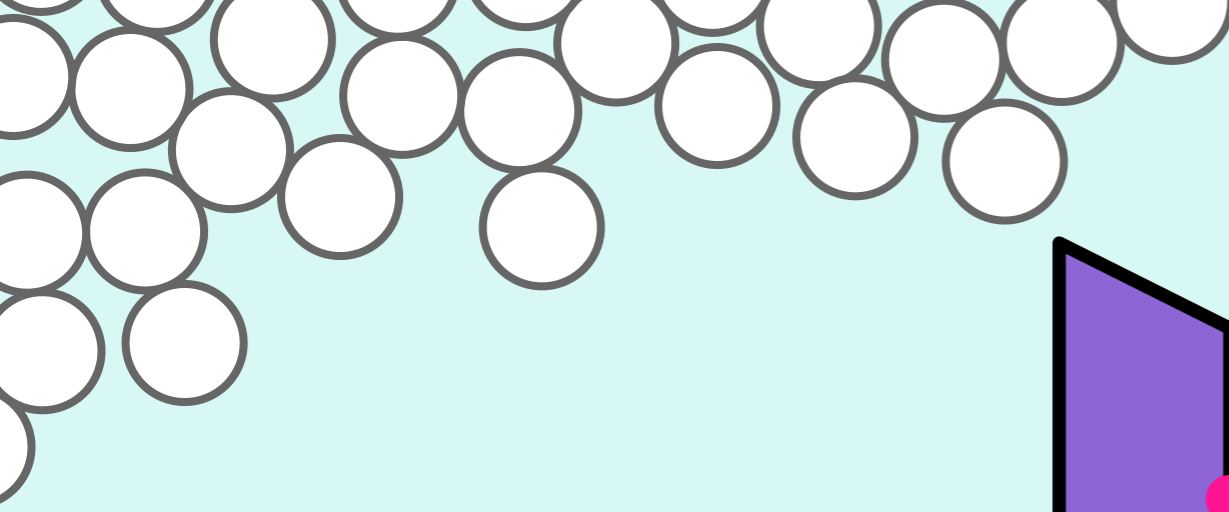


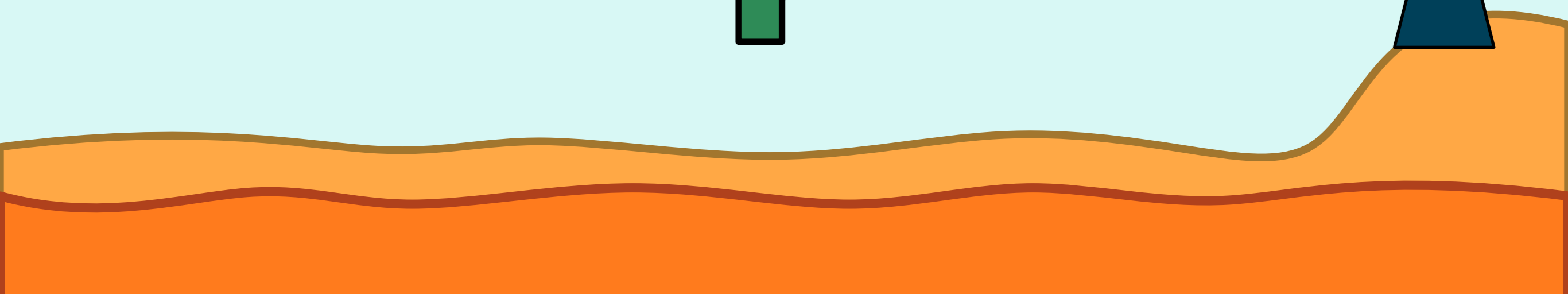
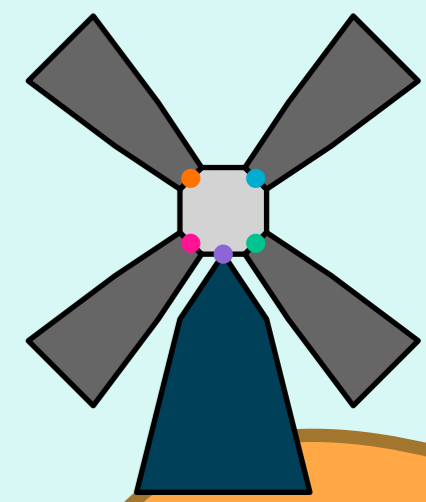
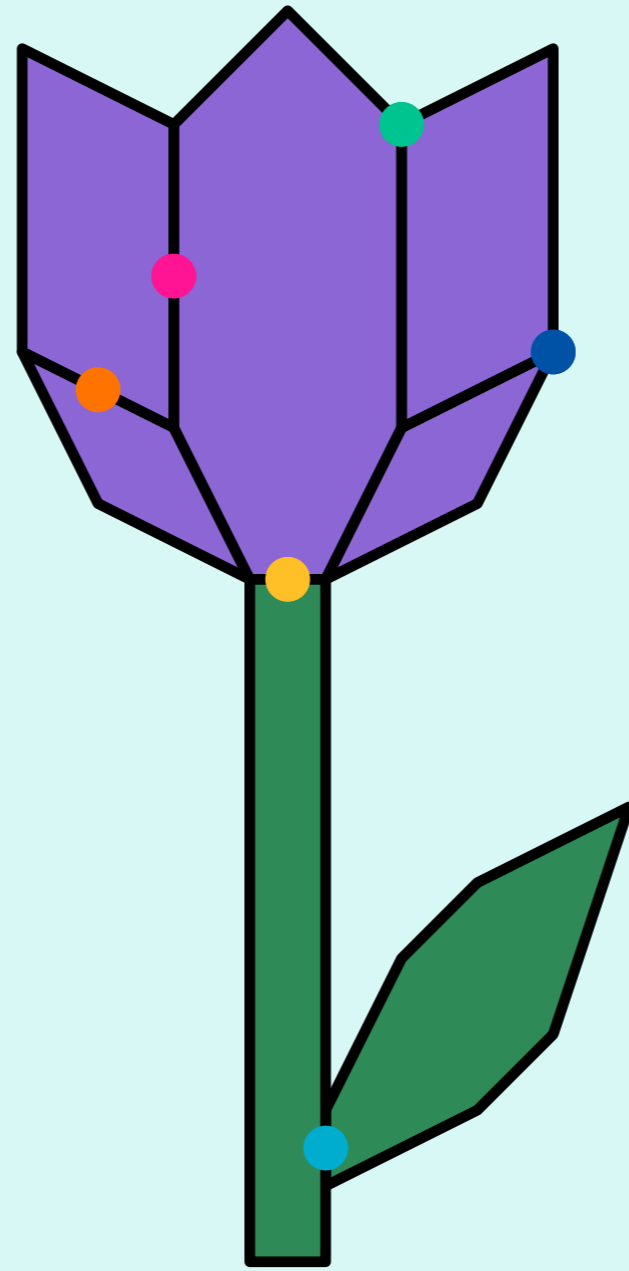
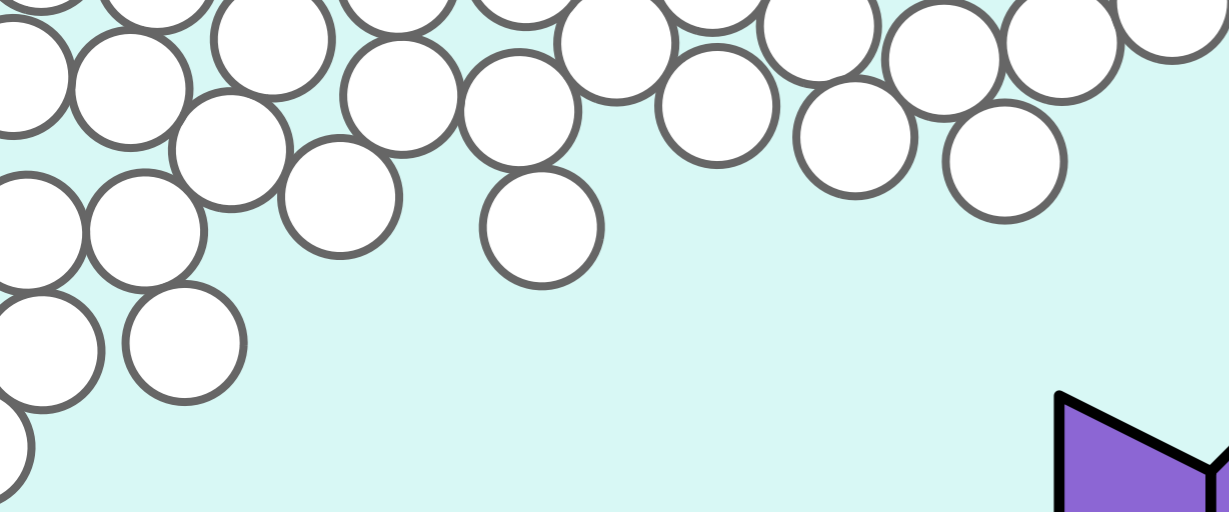


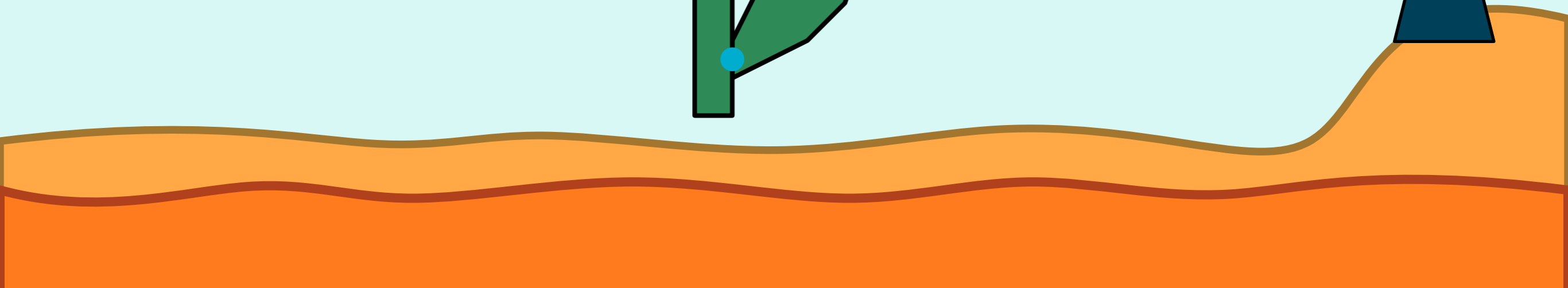
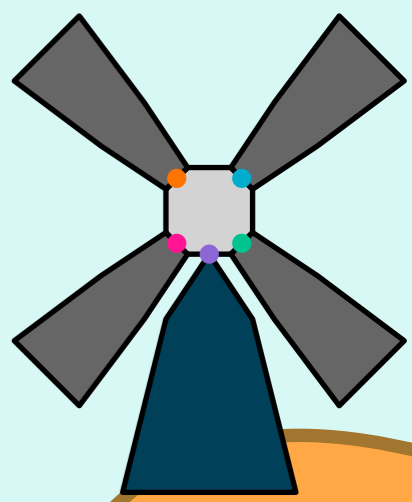
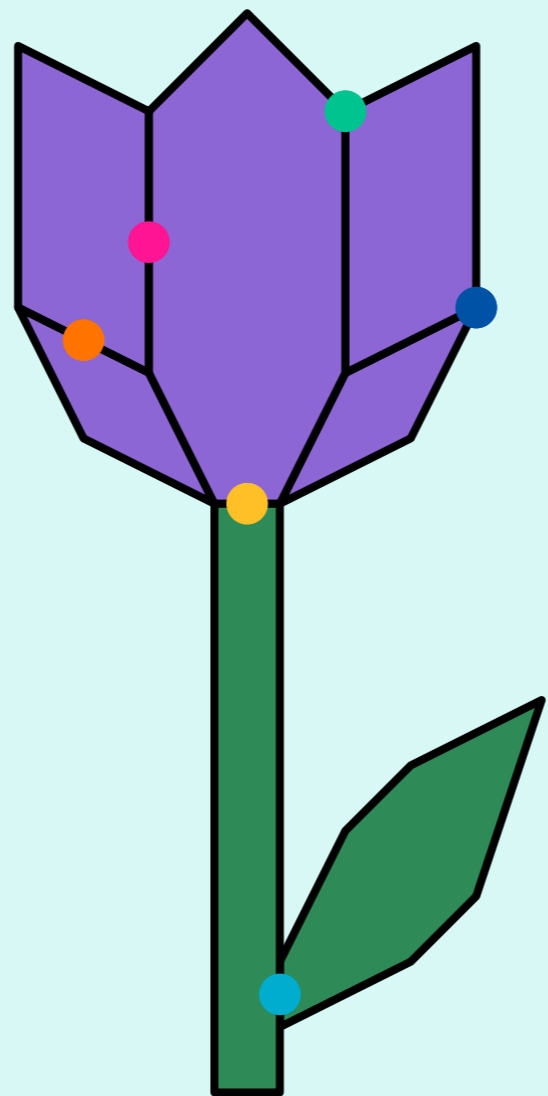
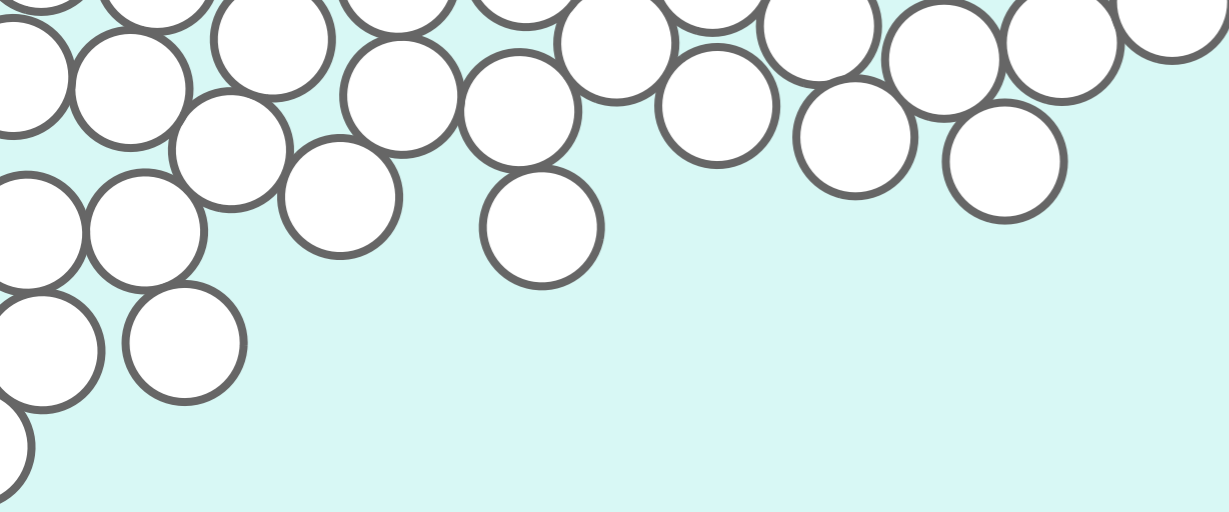


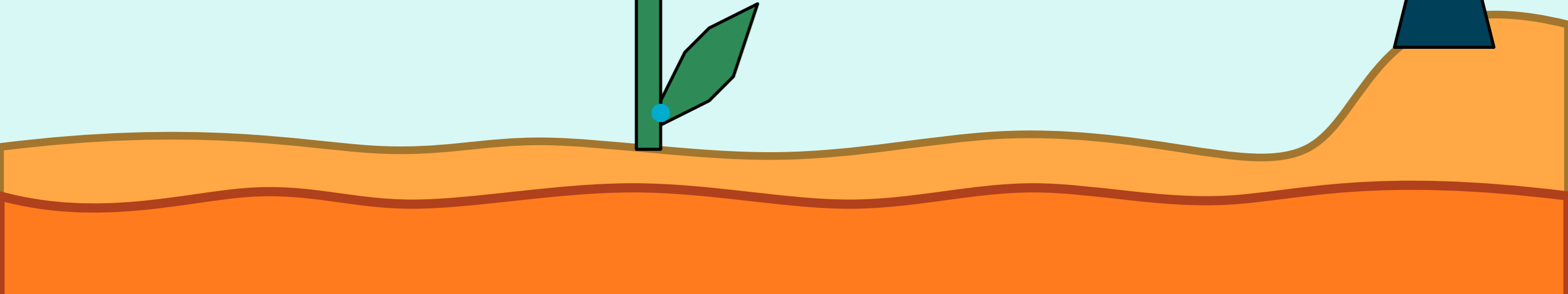
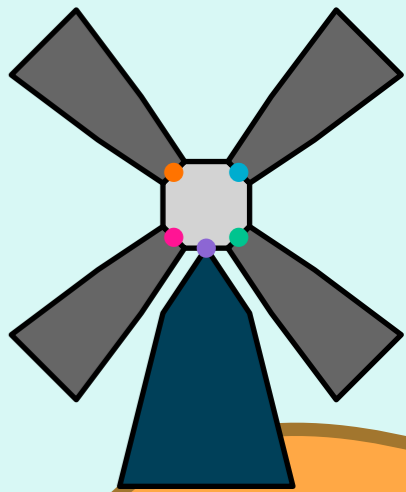
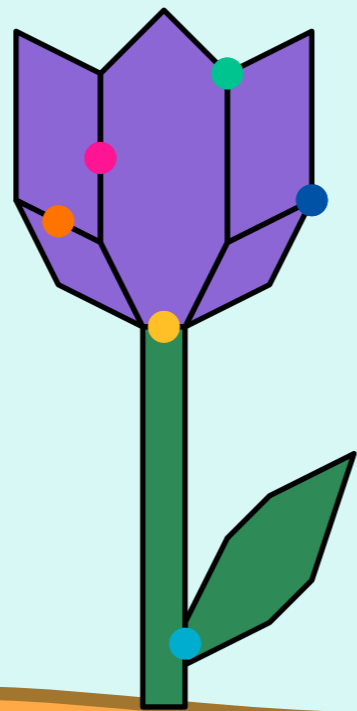
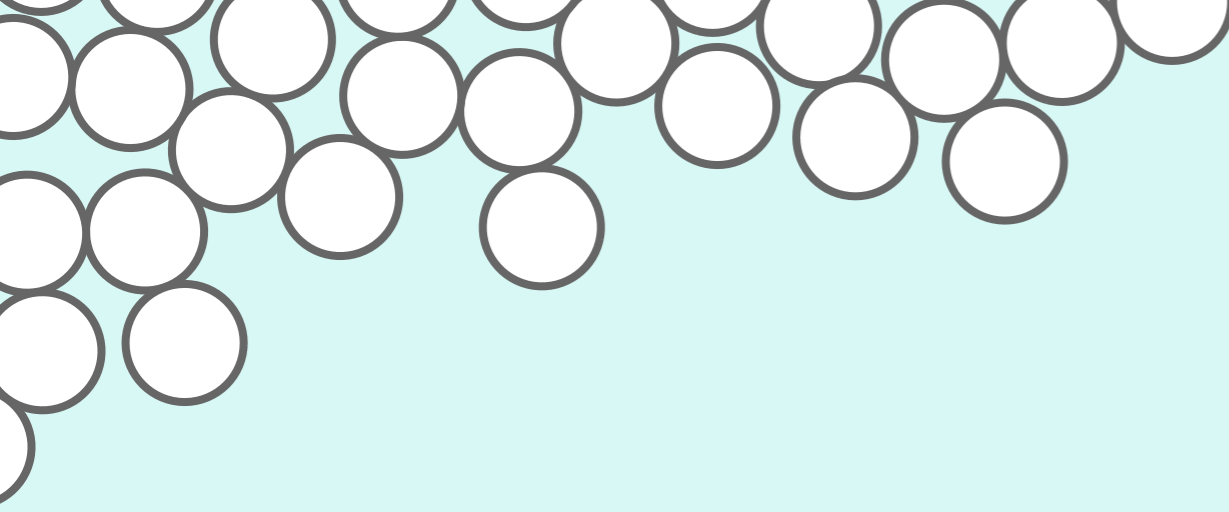


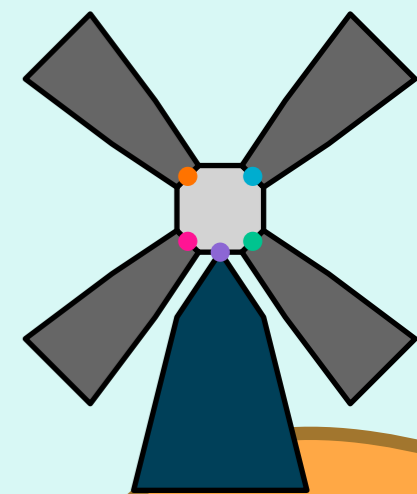
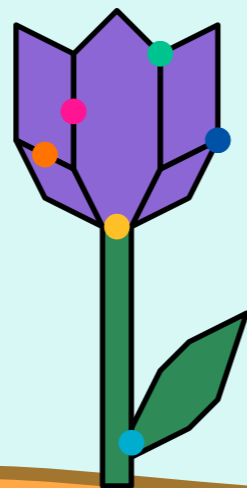
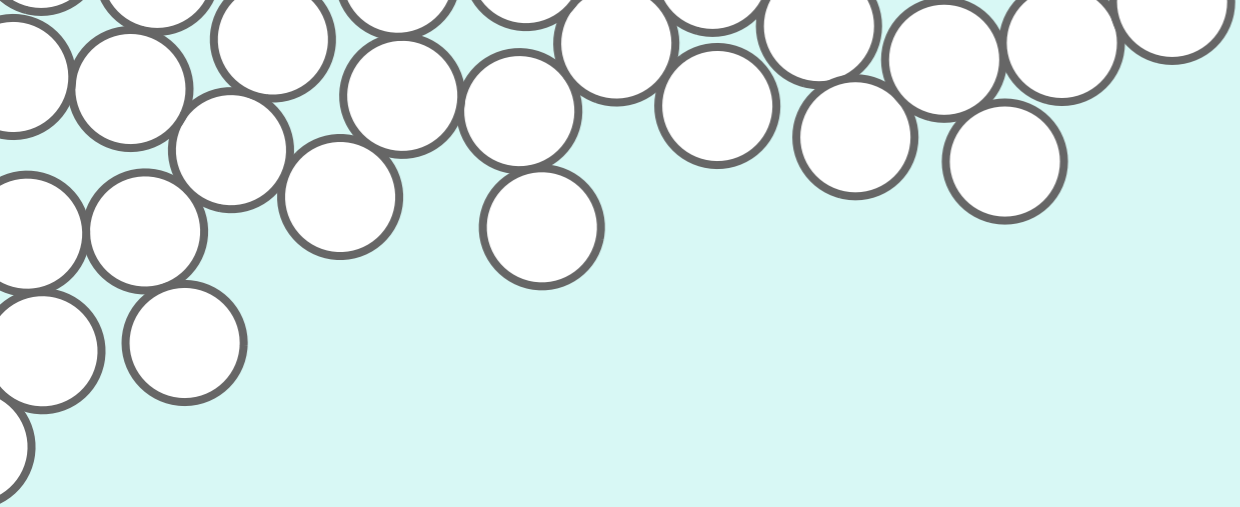


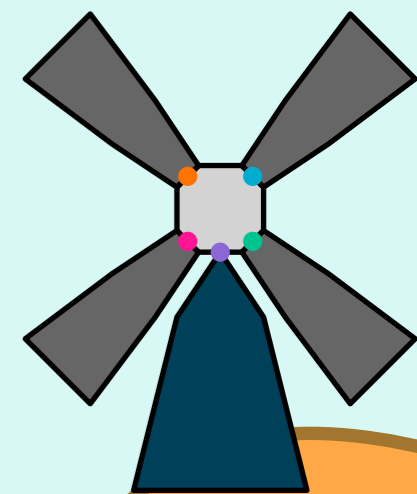
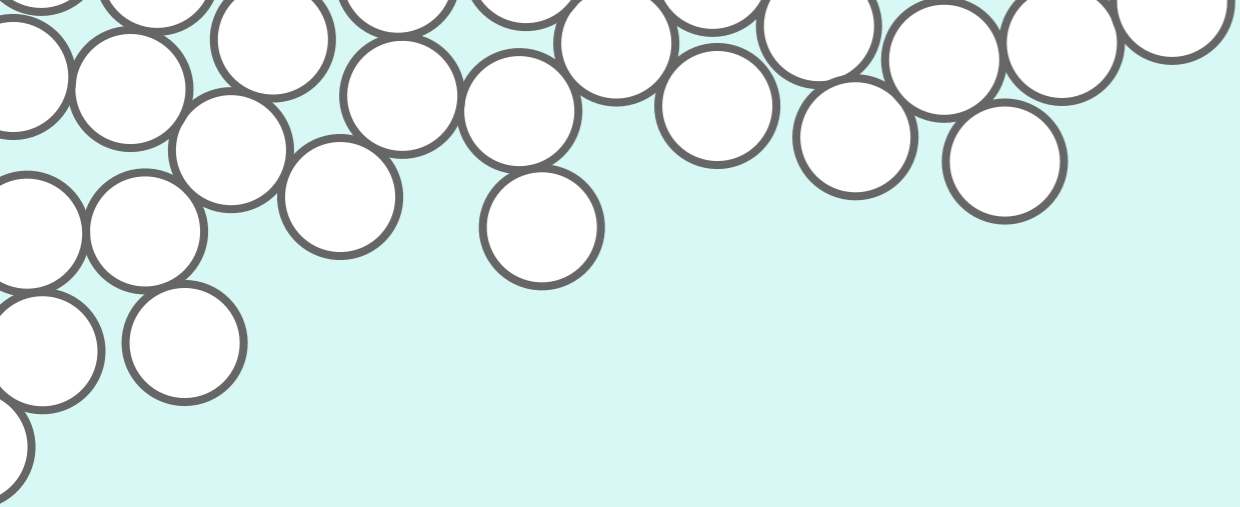


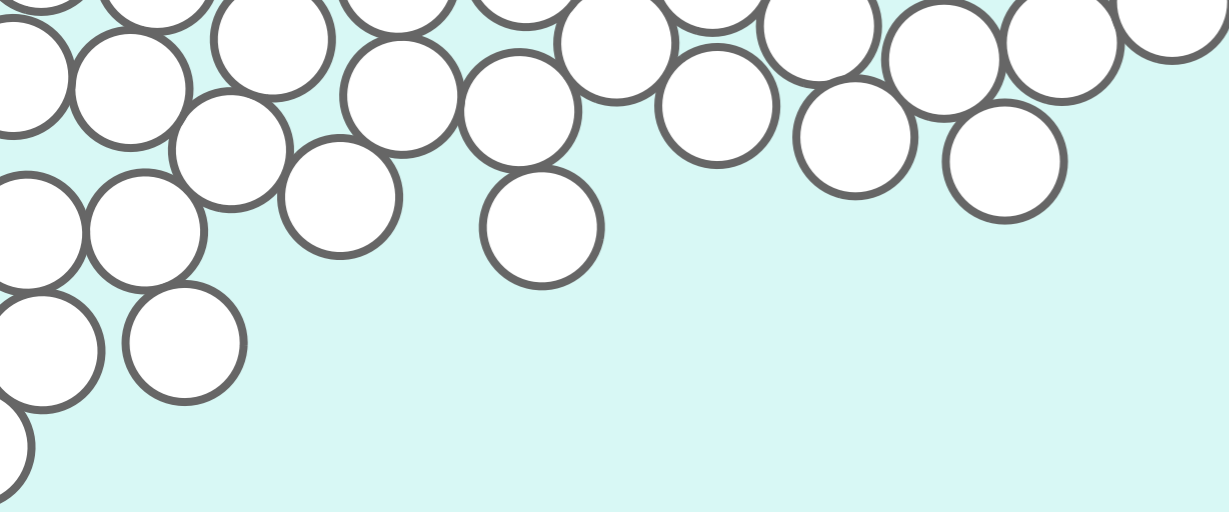




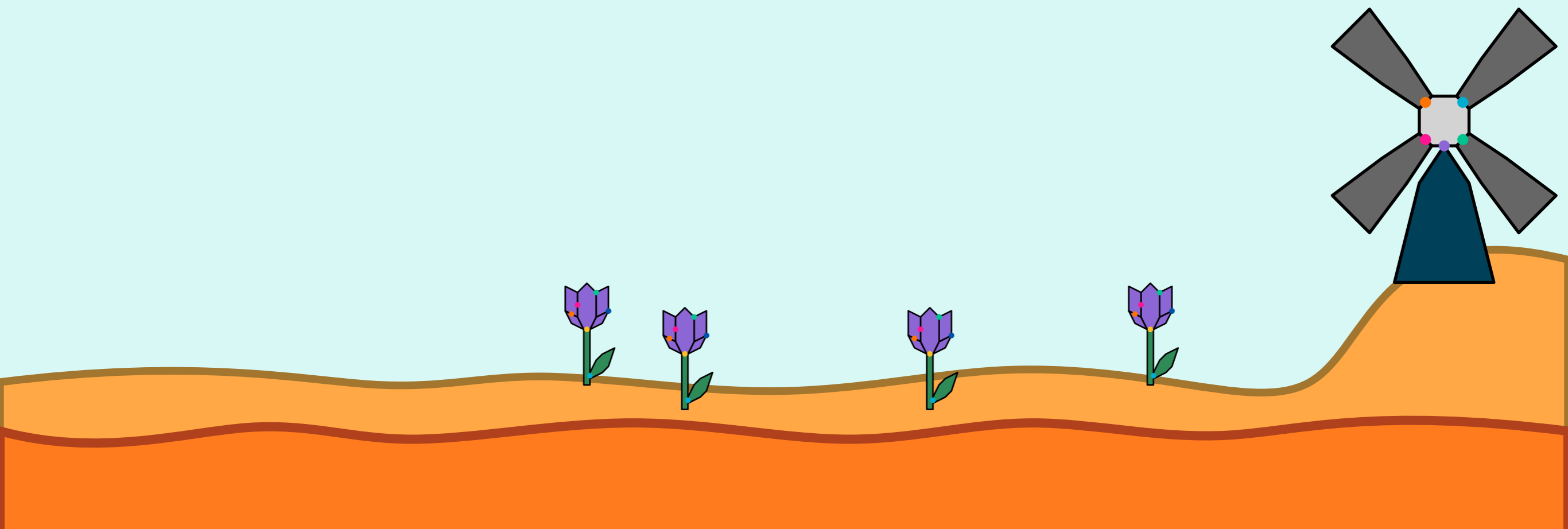


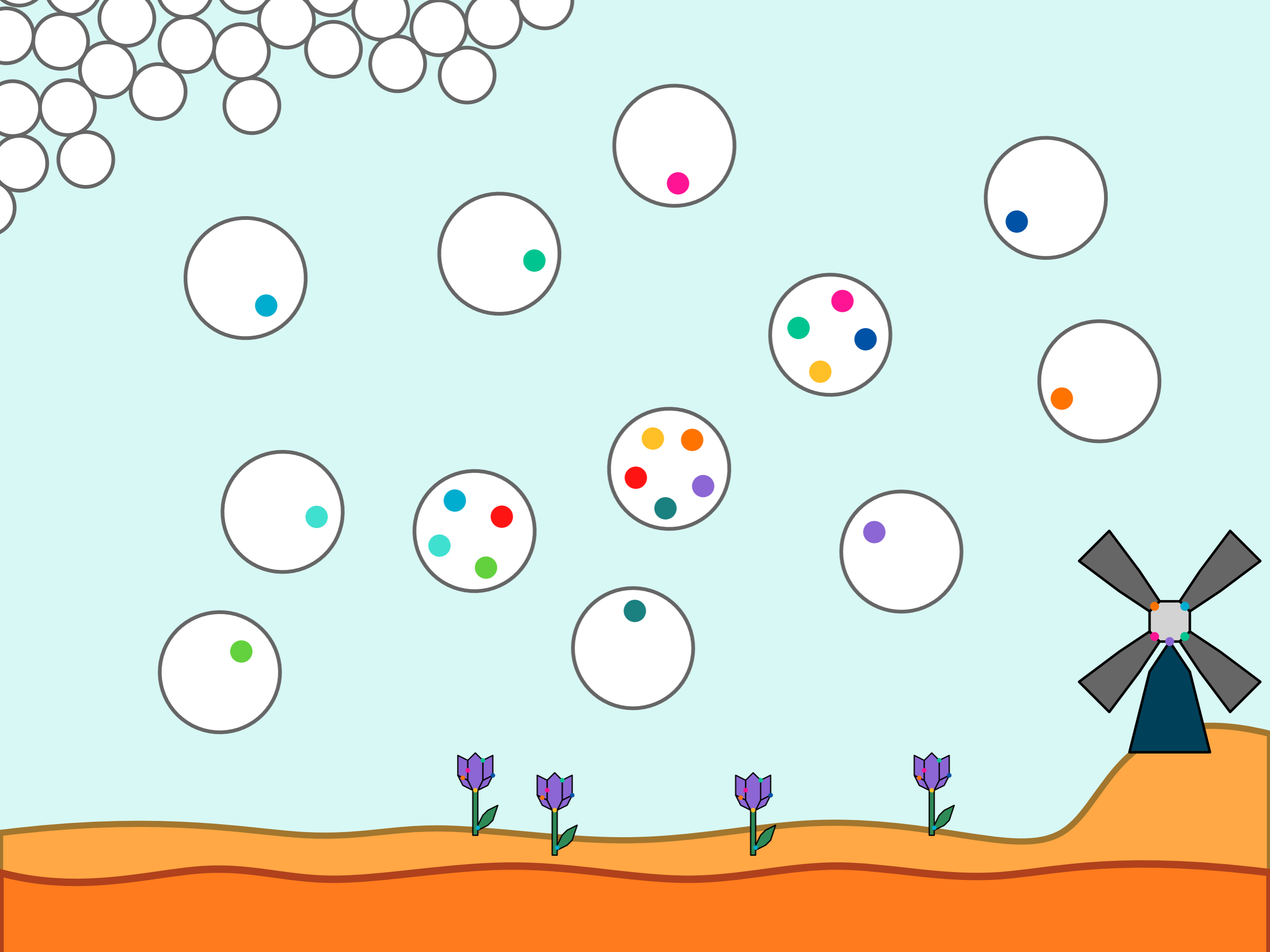


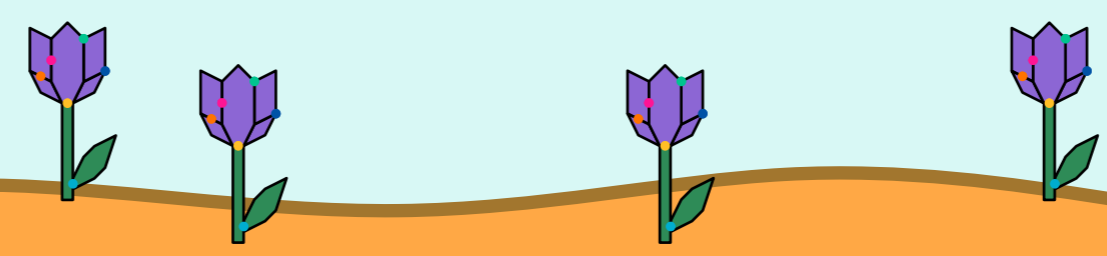
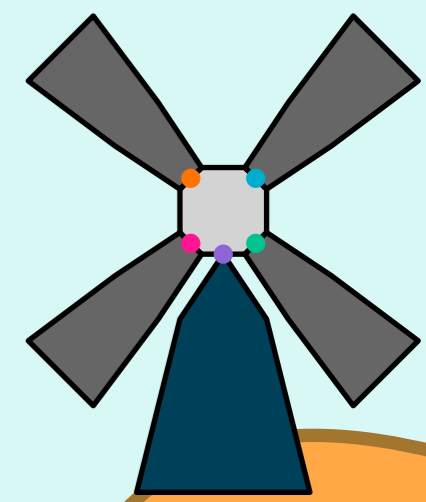
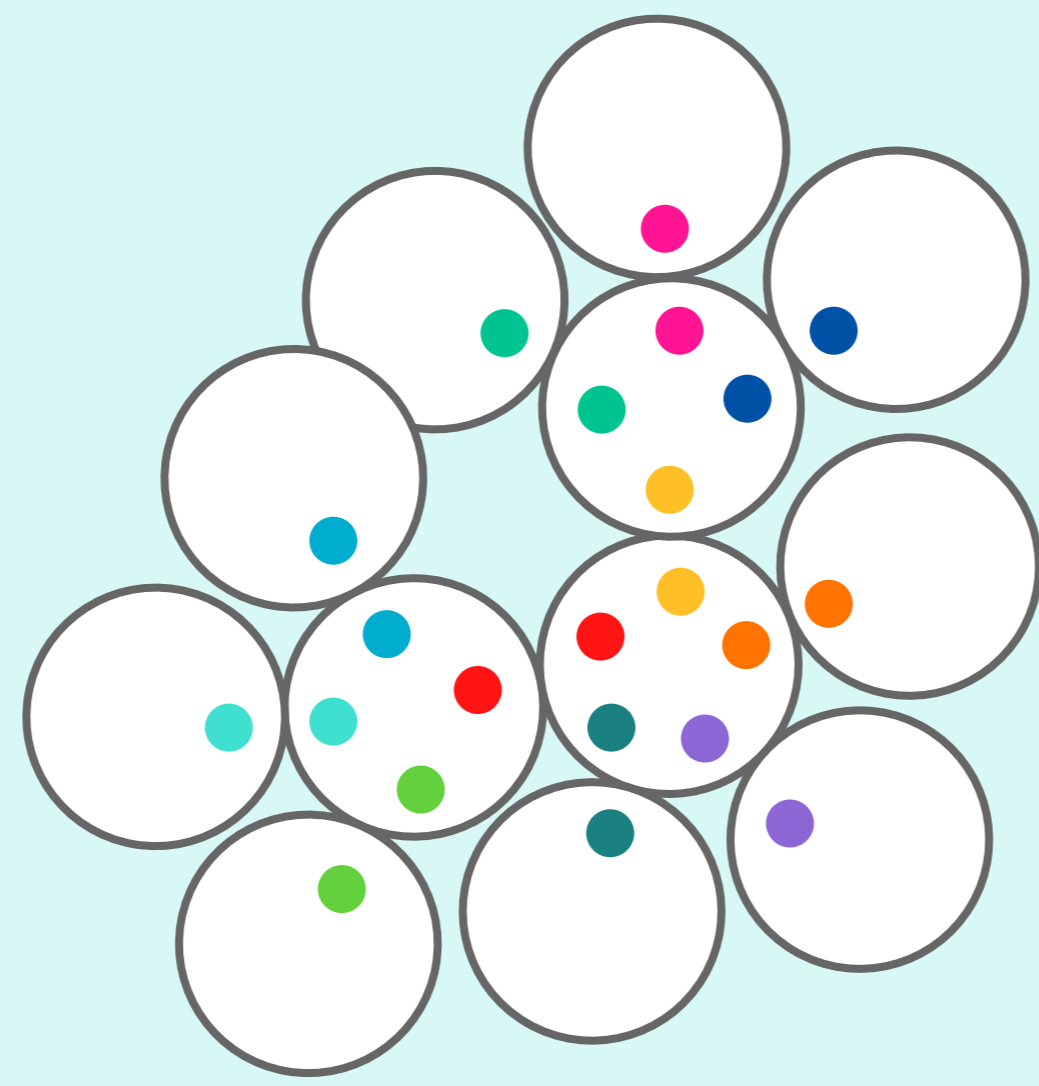
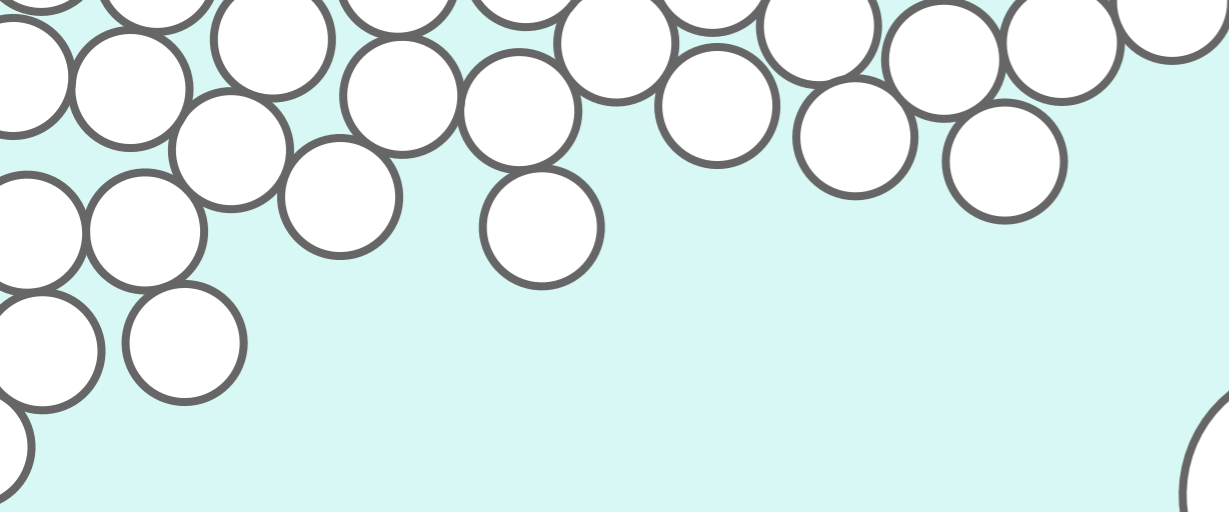


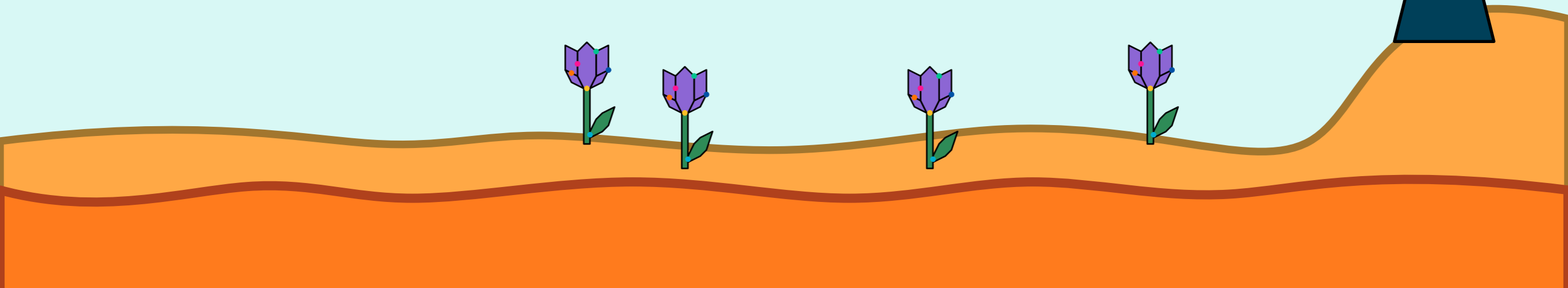
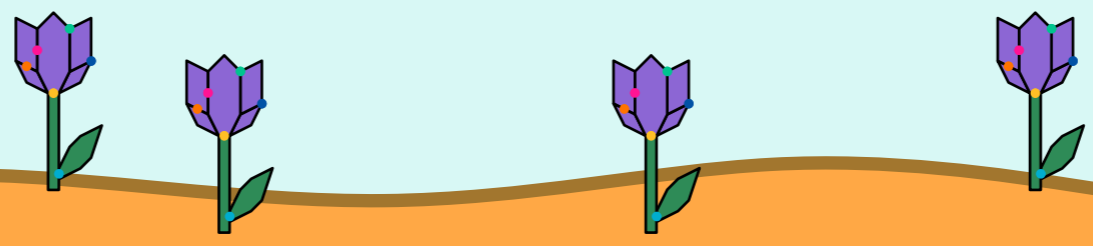
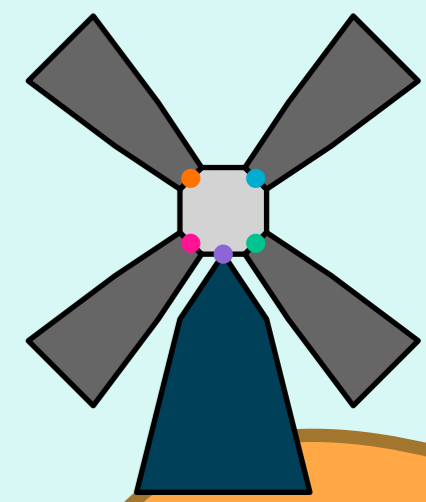
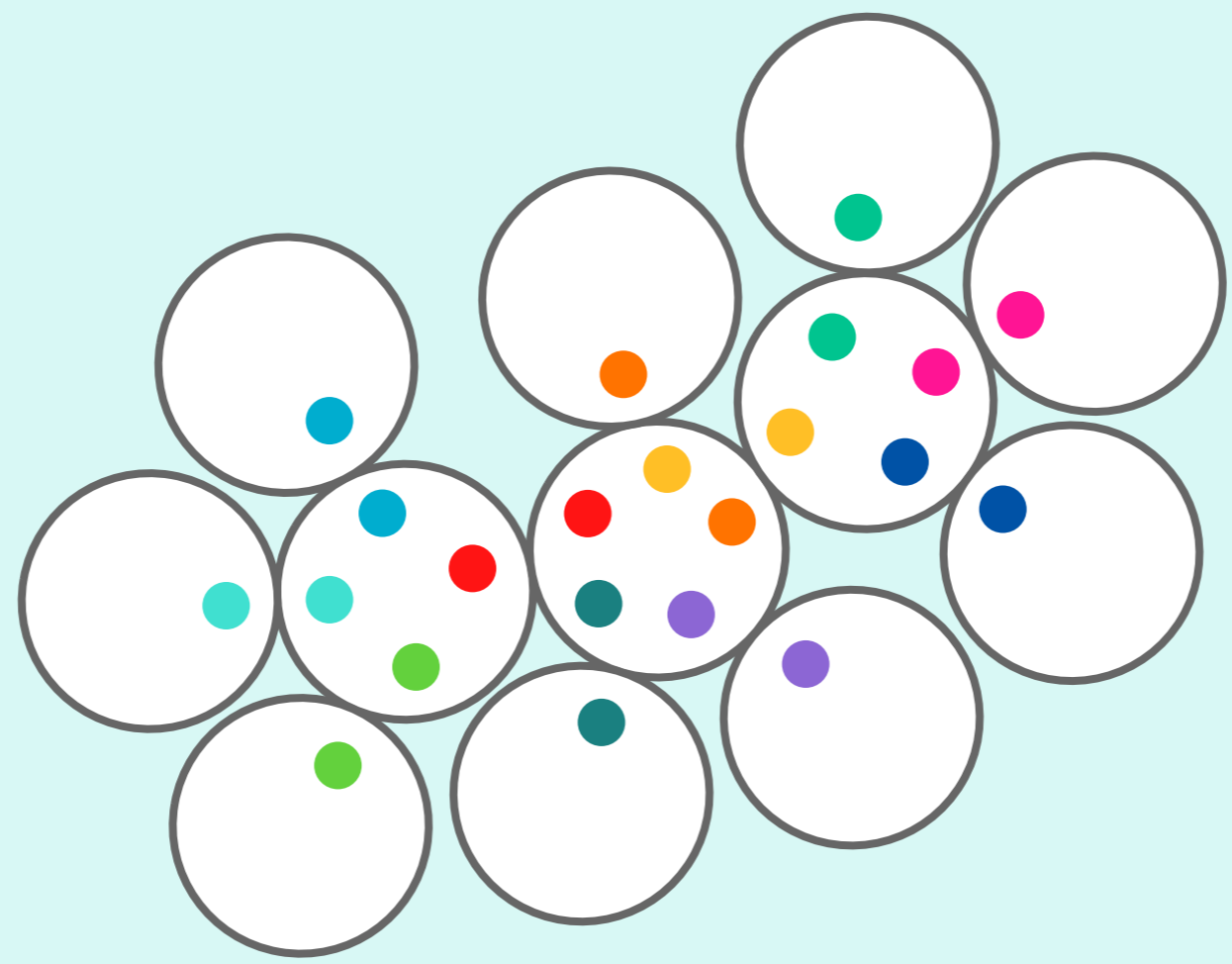
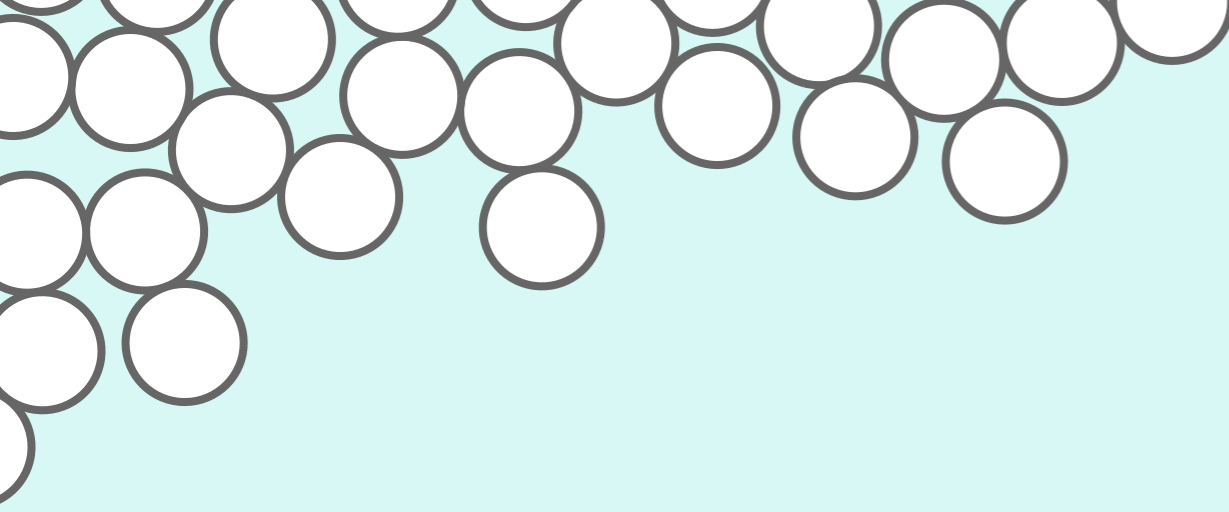


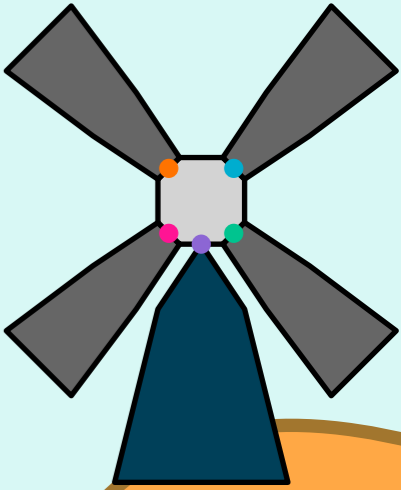
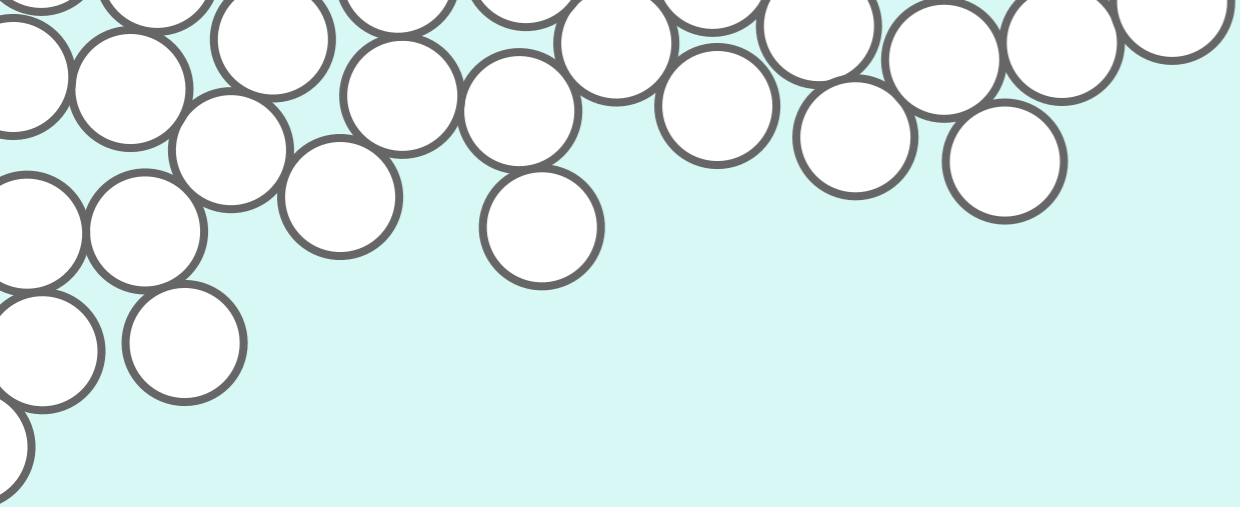
fixed or free embeddings?

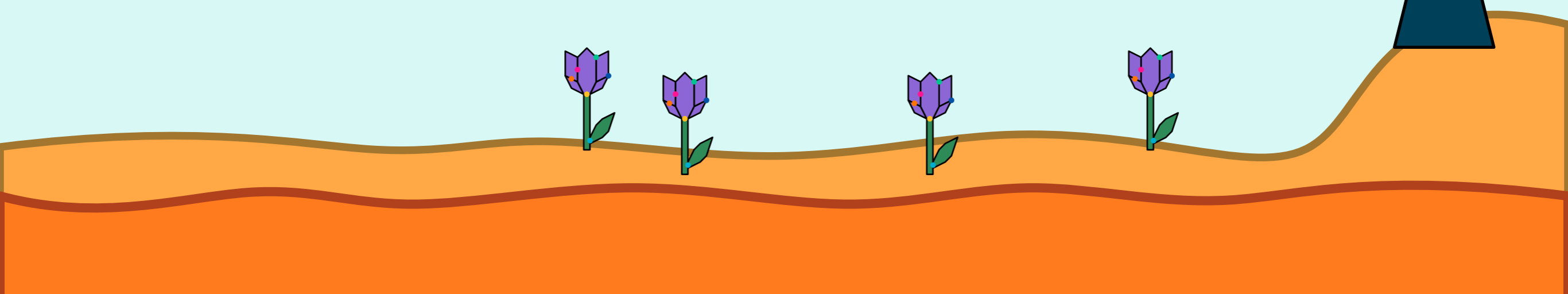
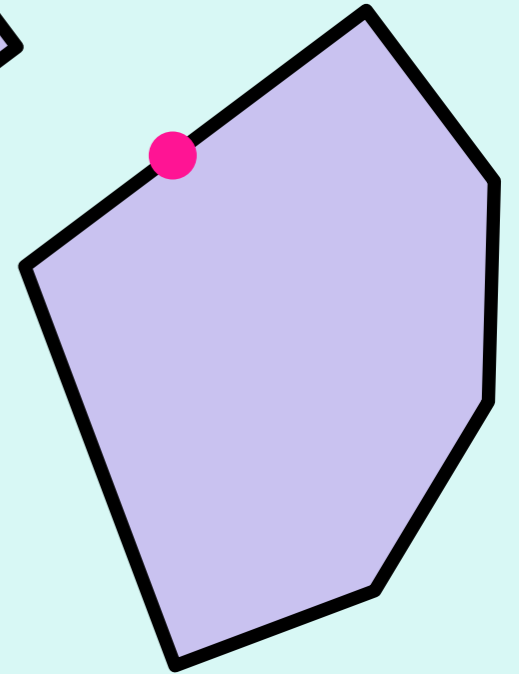
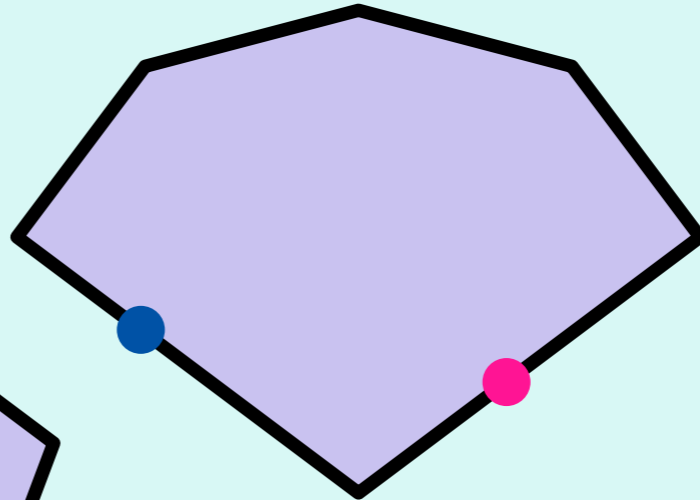
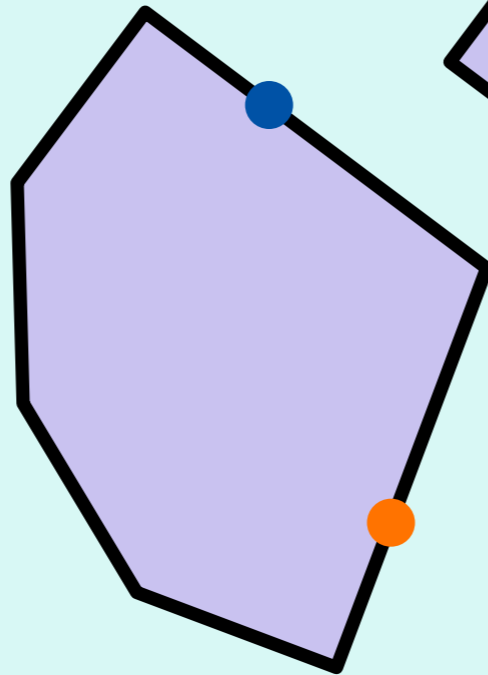
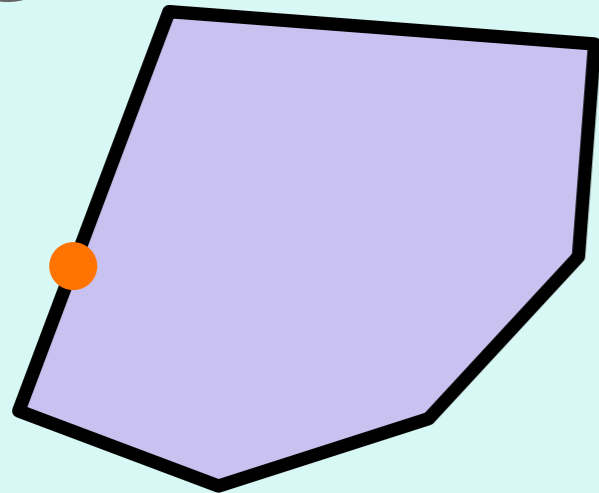
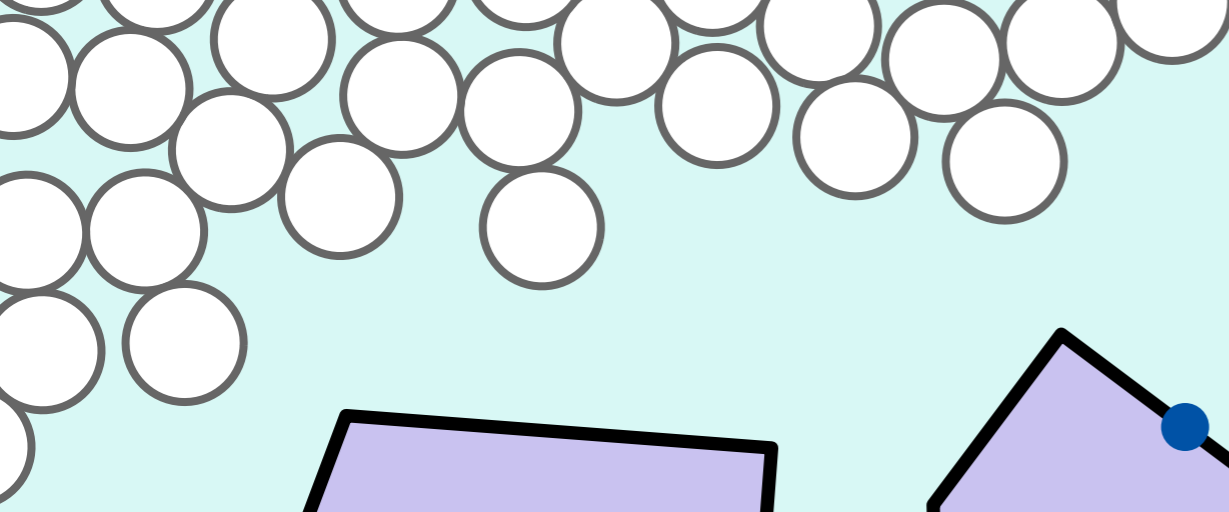


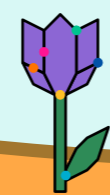
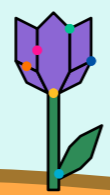
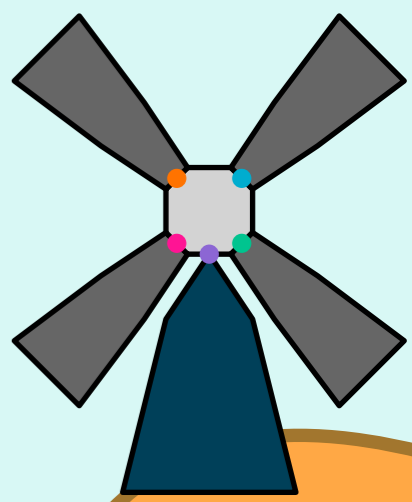
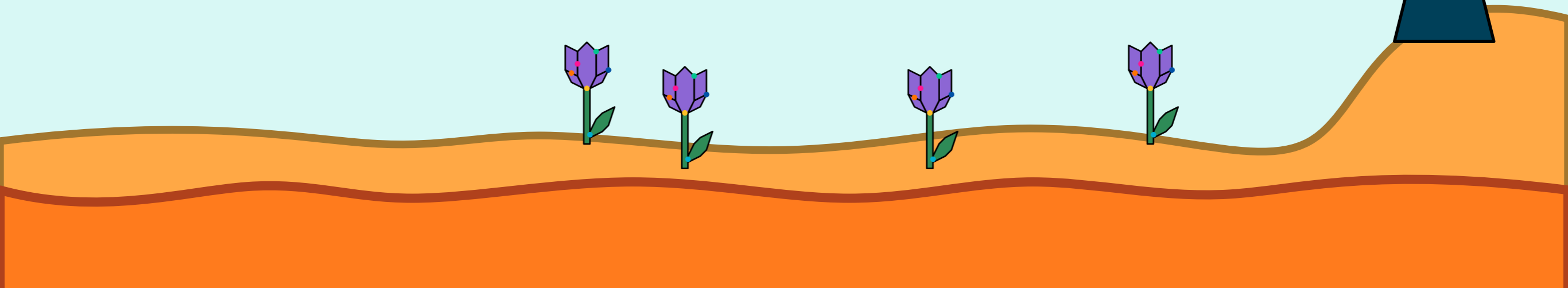
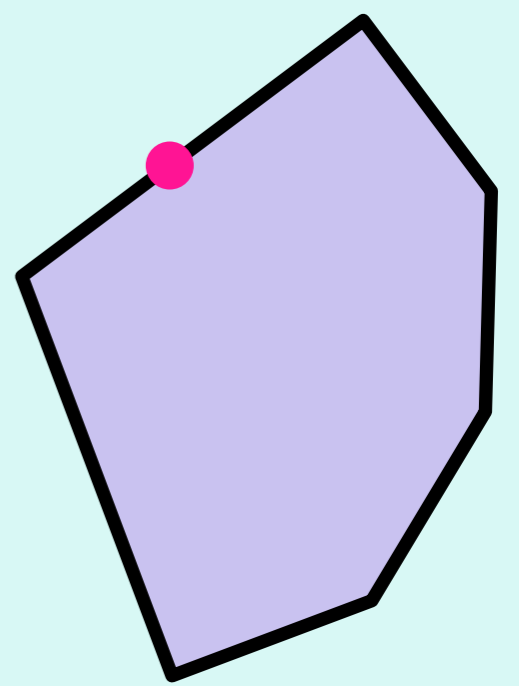
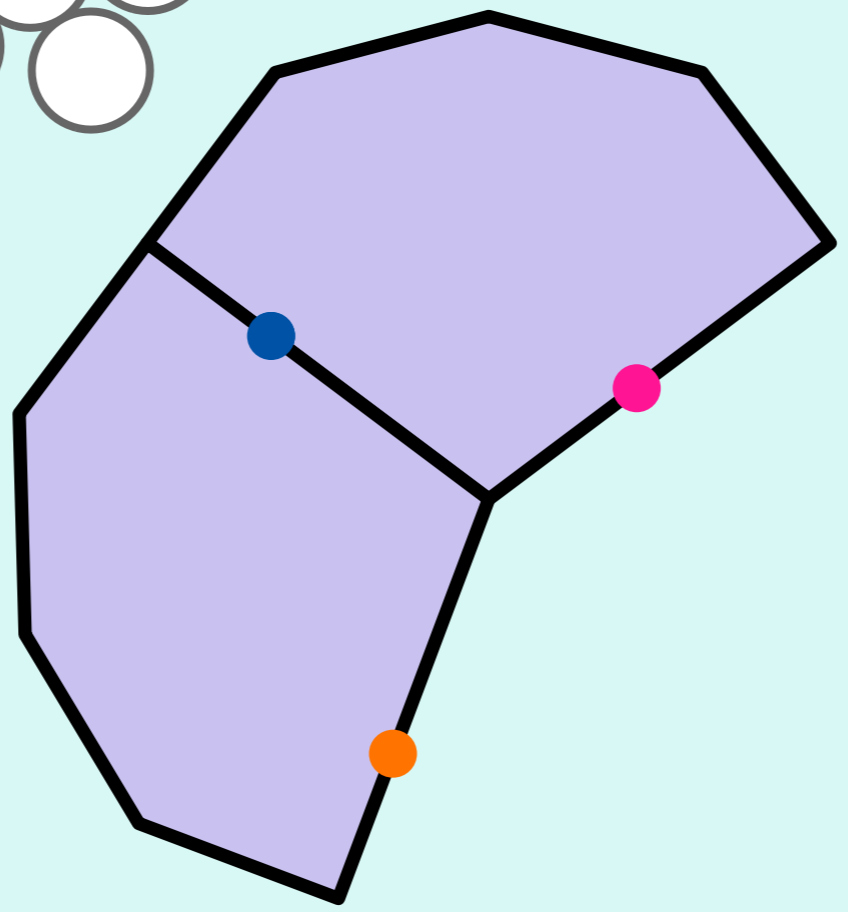
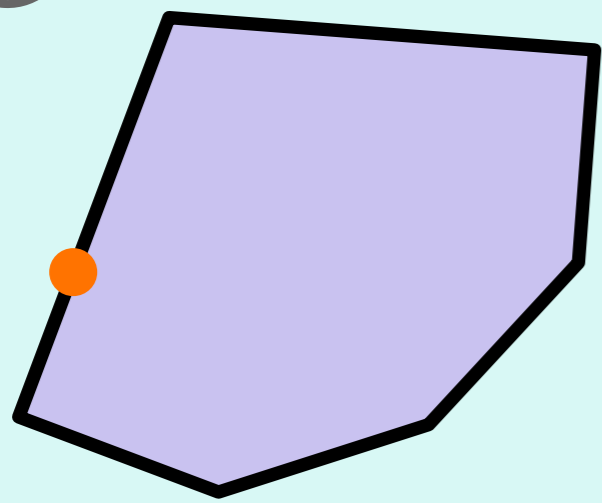
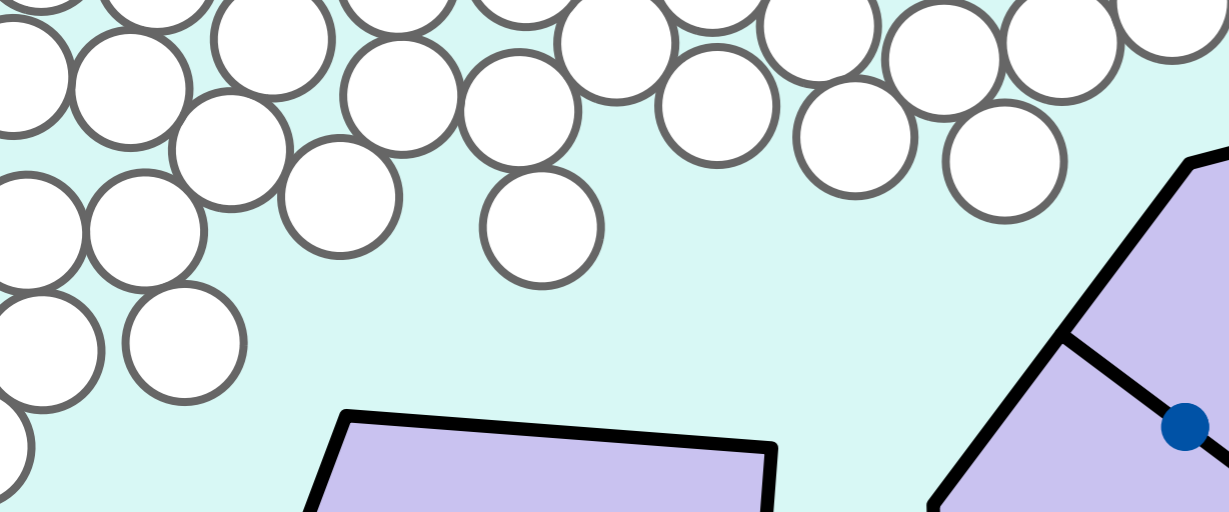


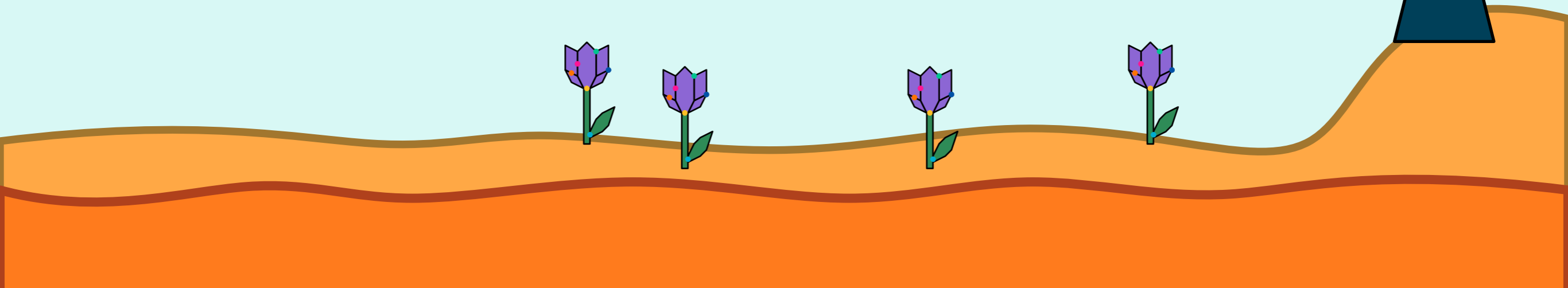
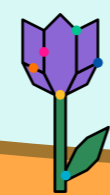
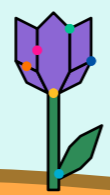
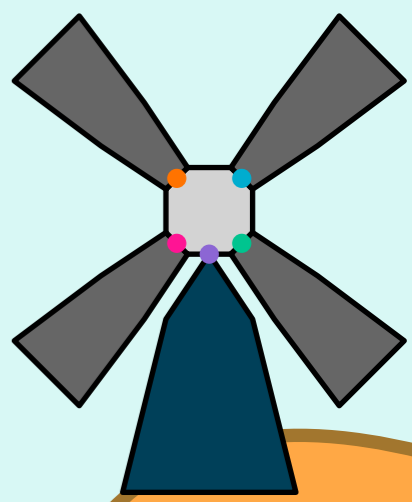
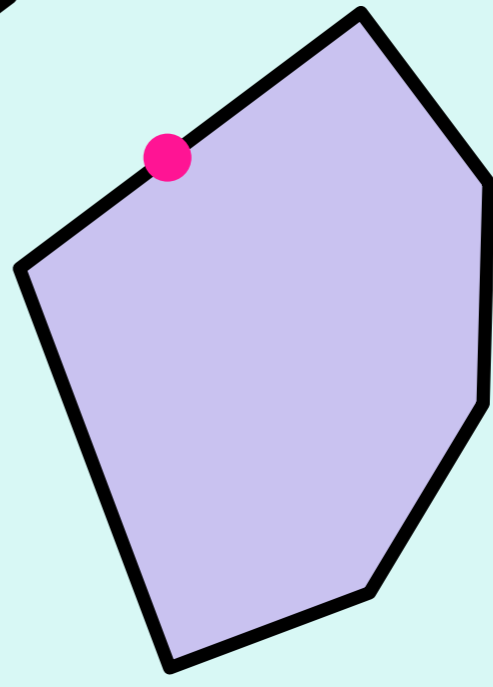
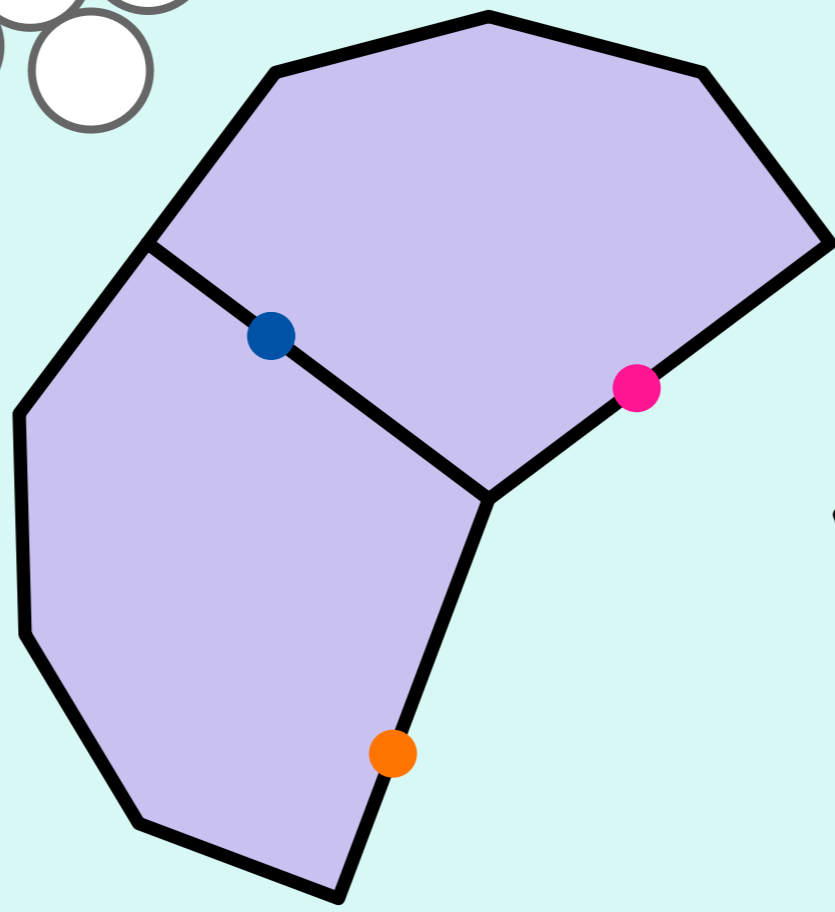
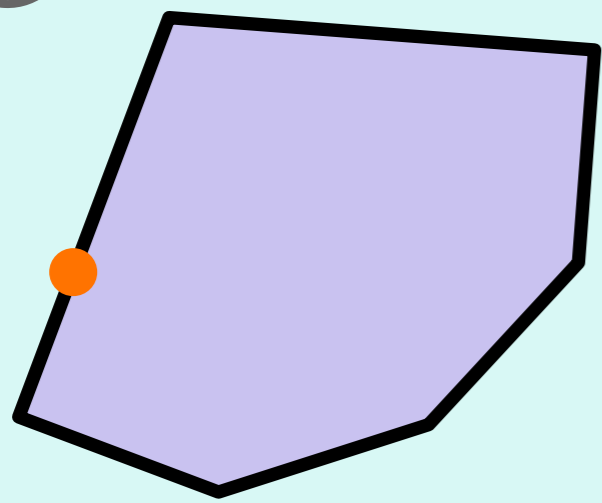
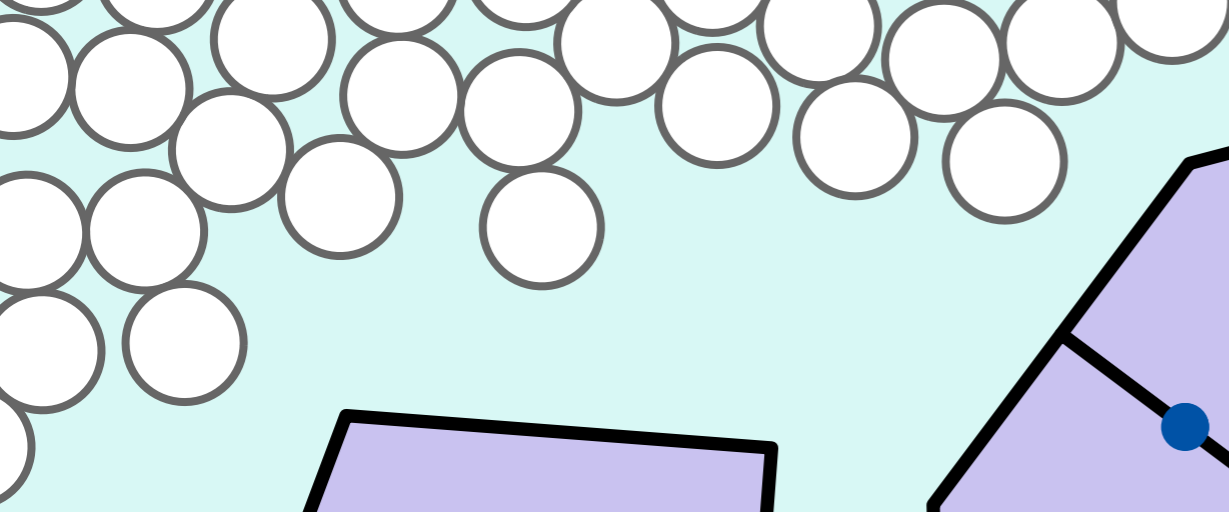


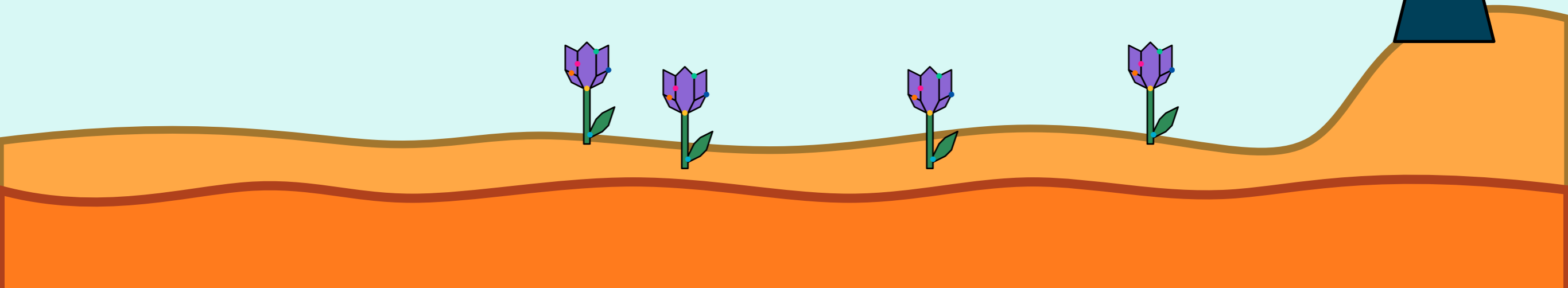
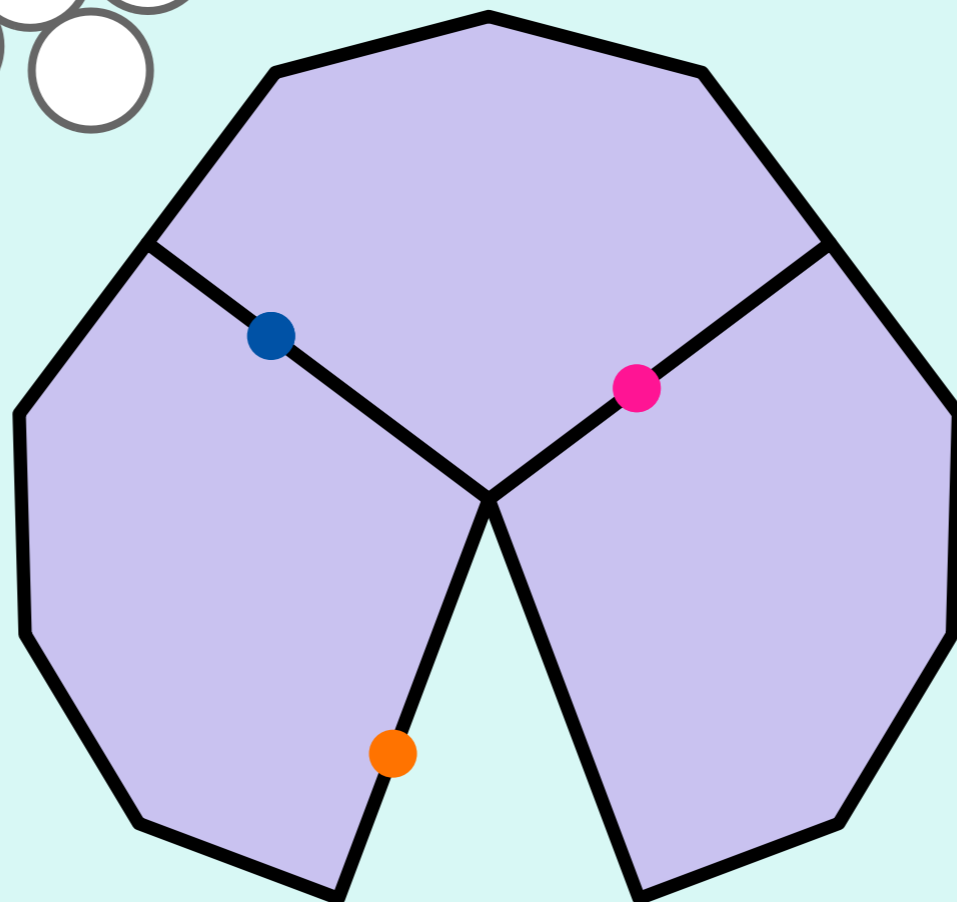
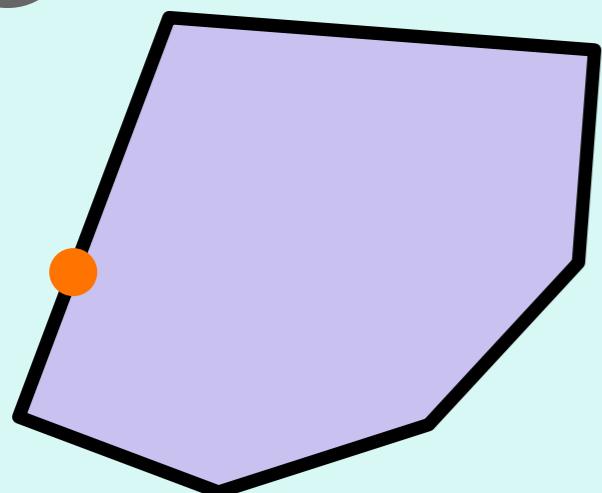
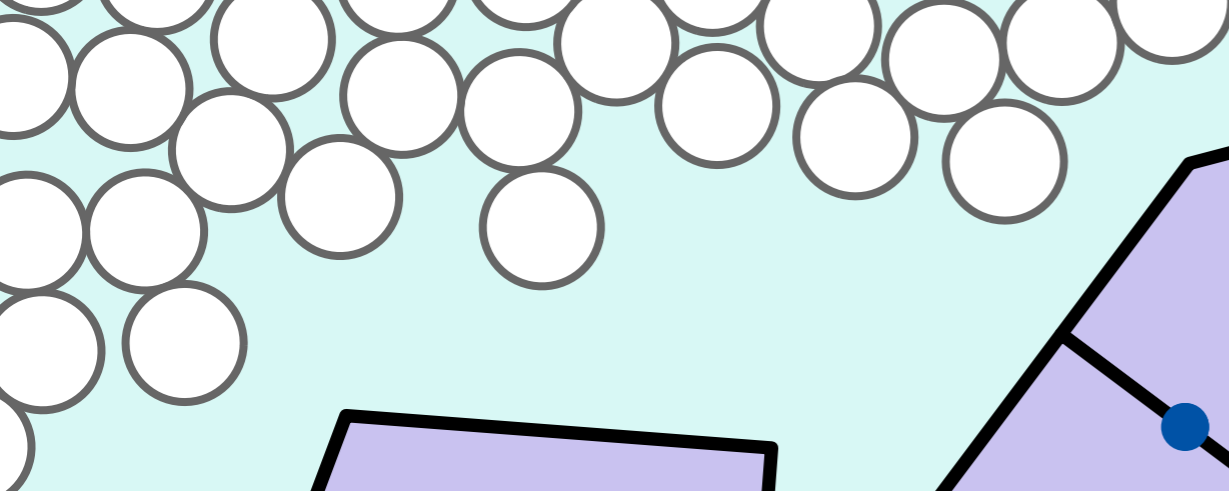


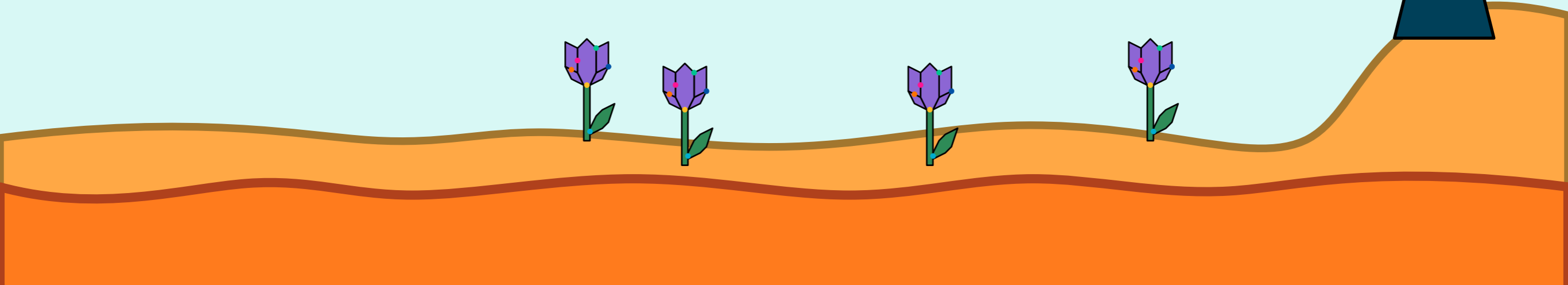
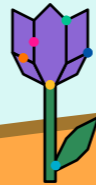
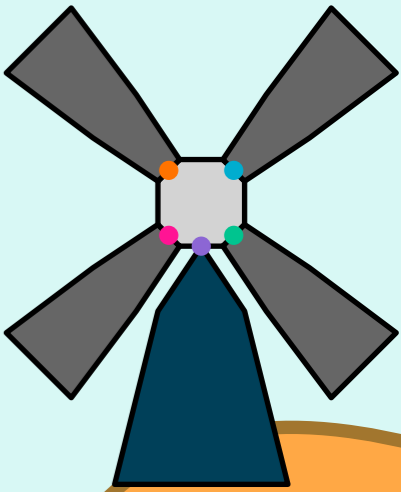
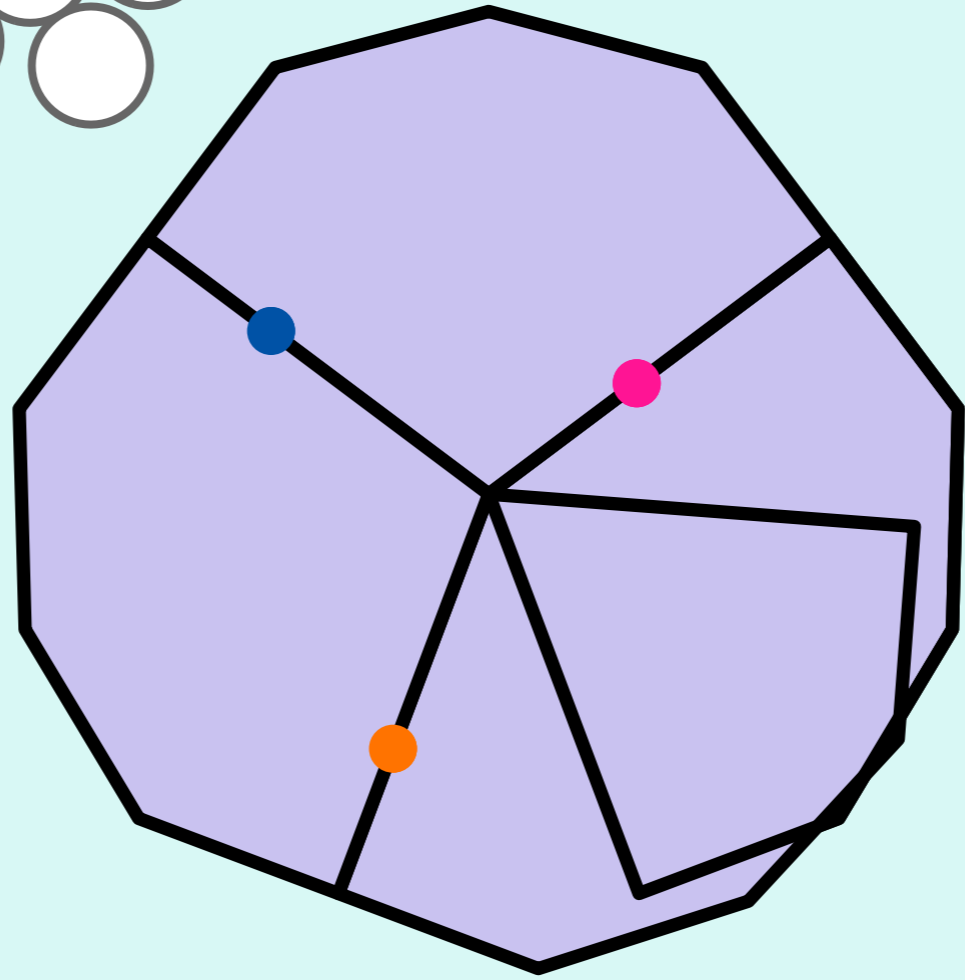
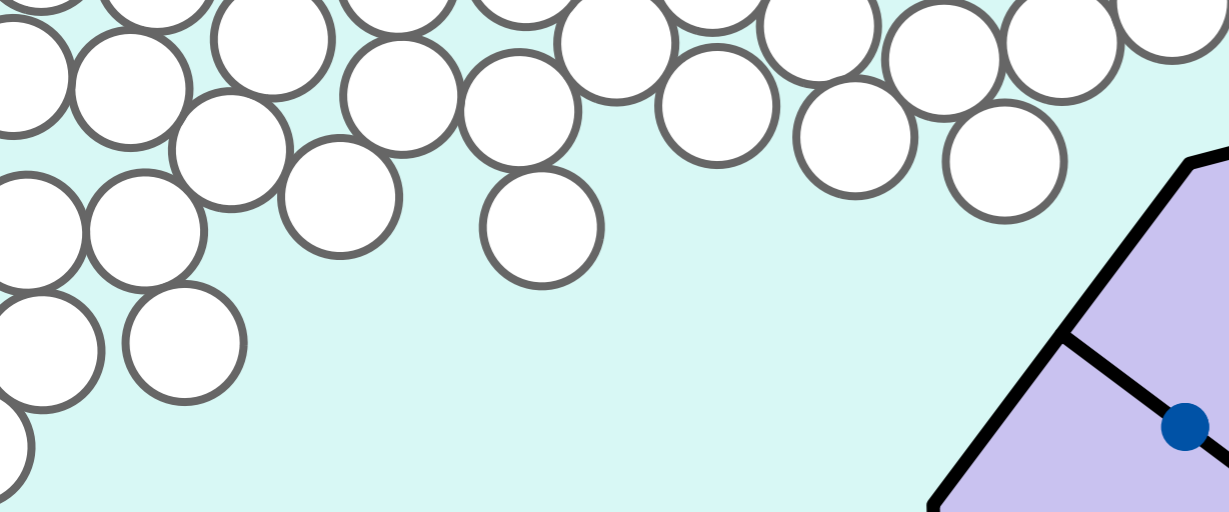


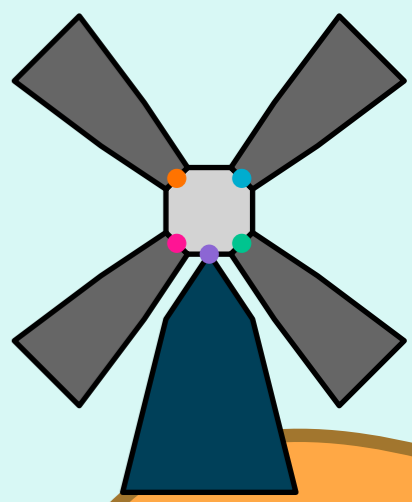
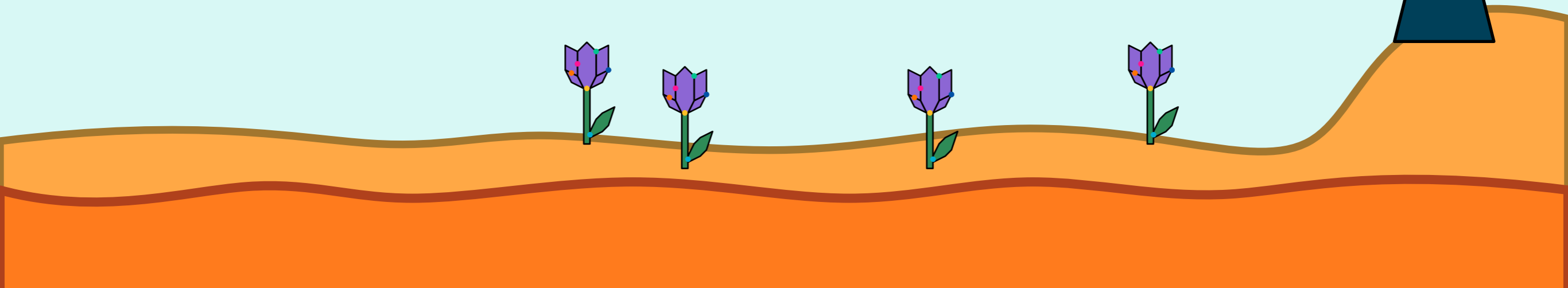
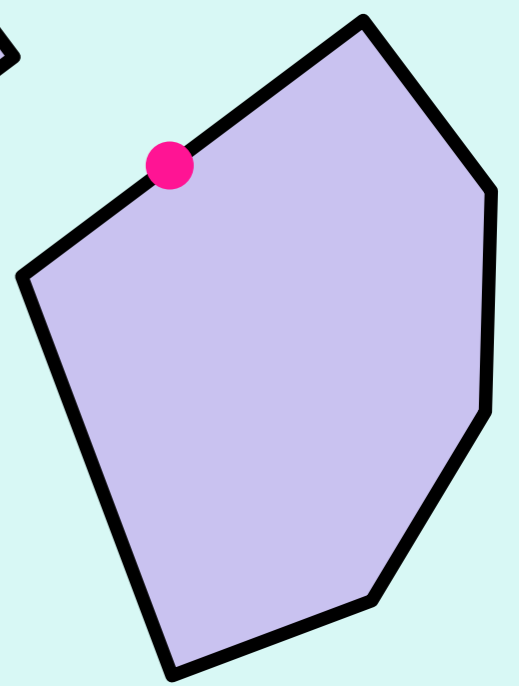
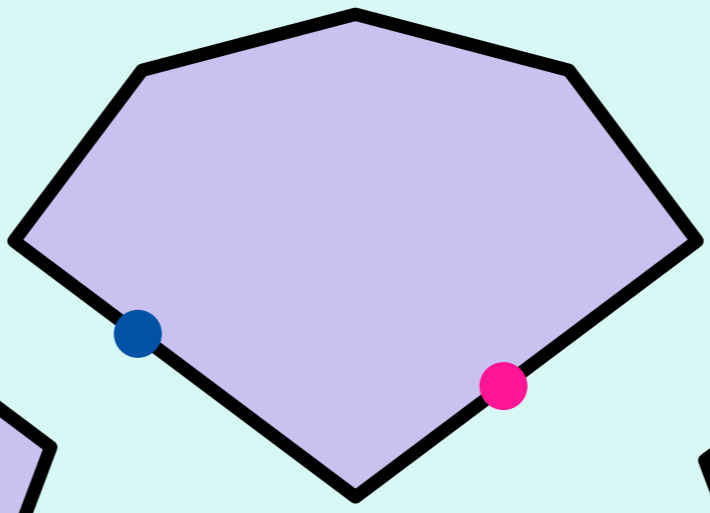
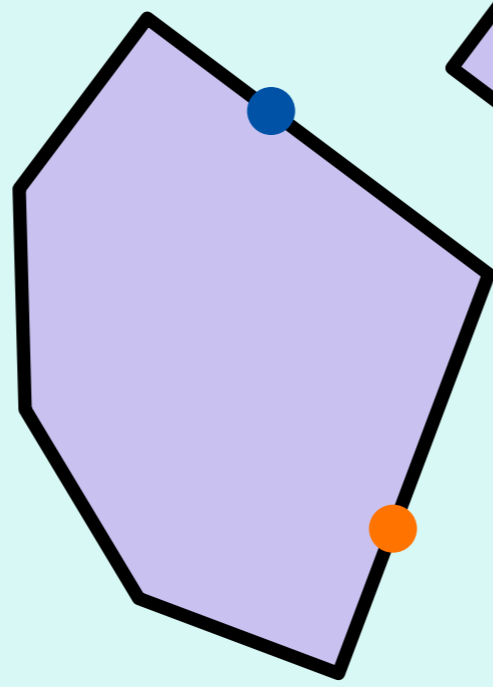
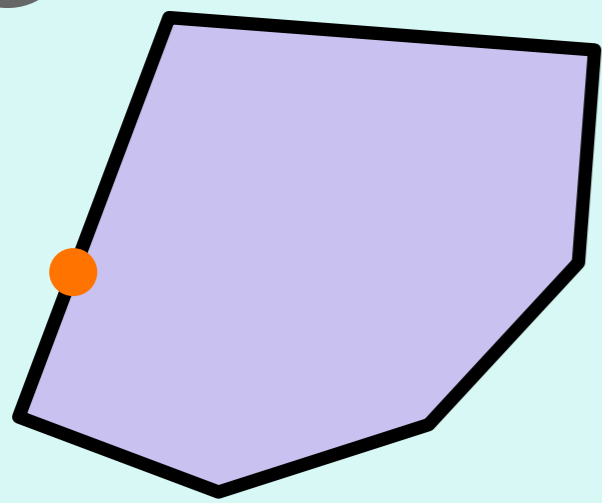
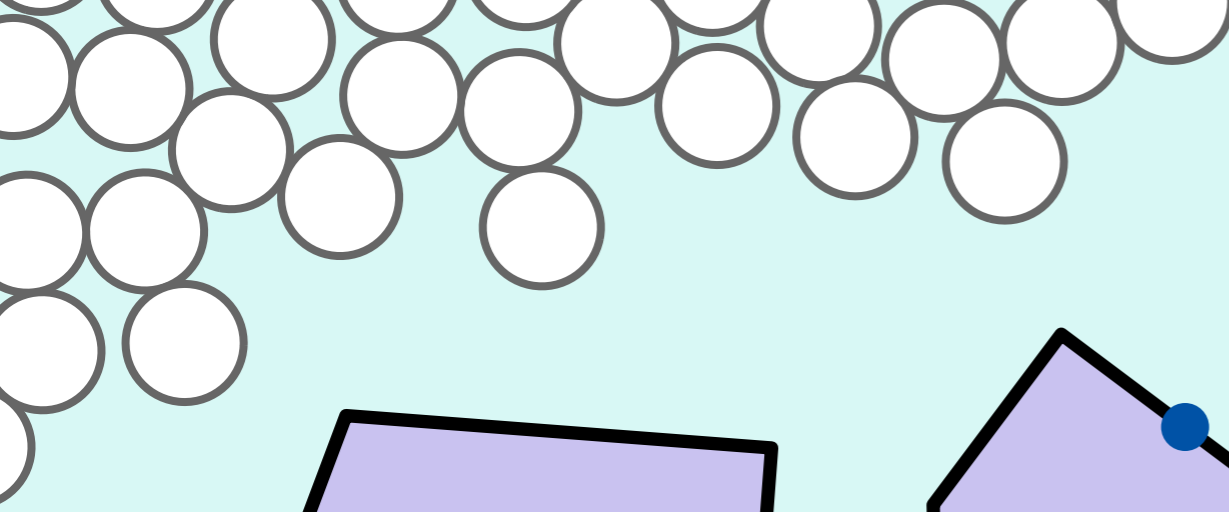


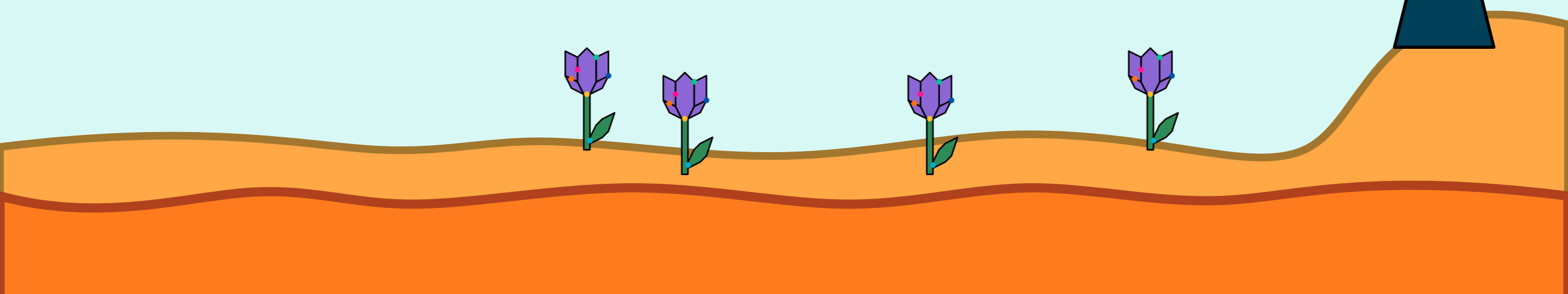
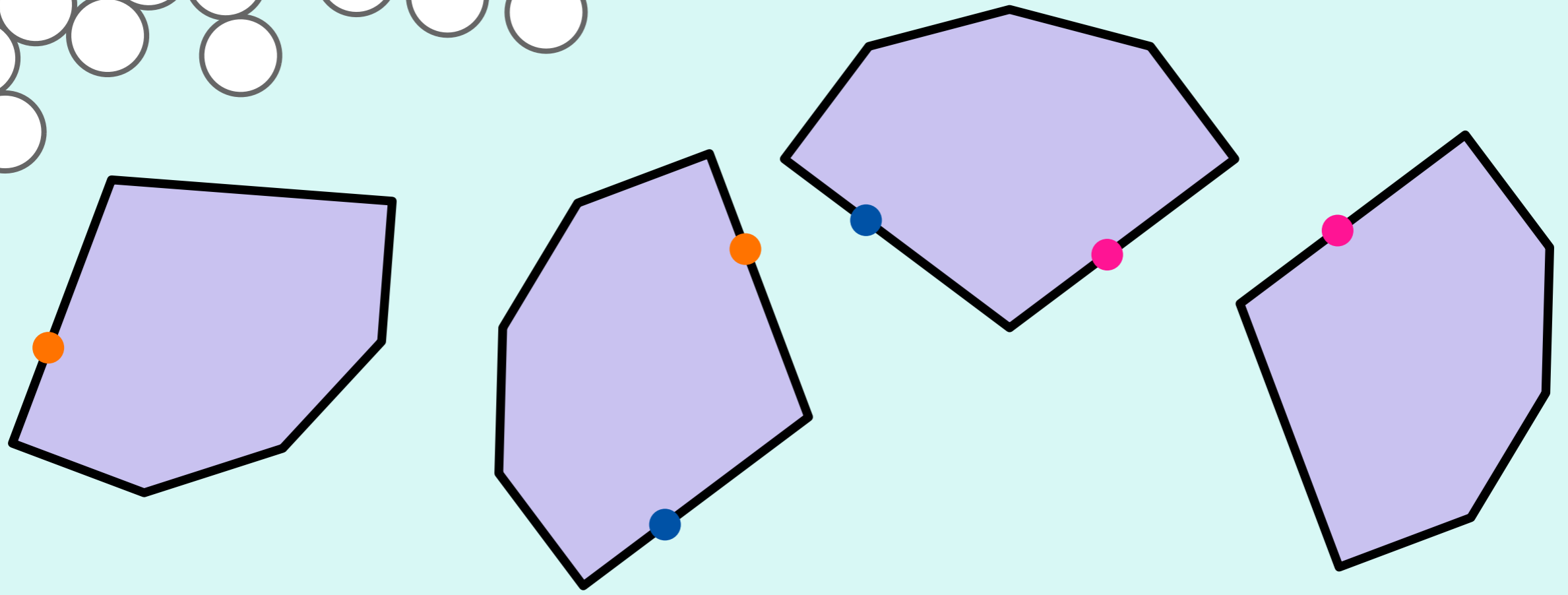
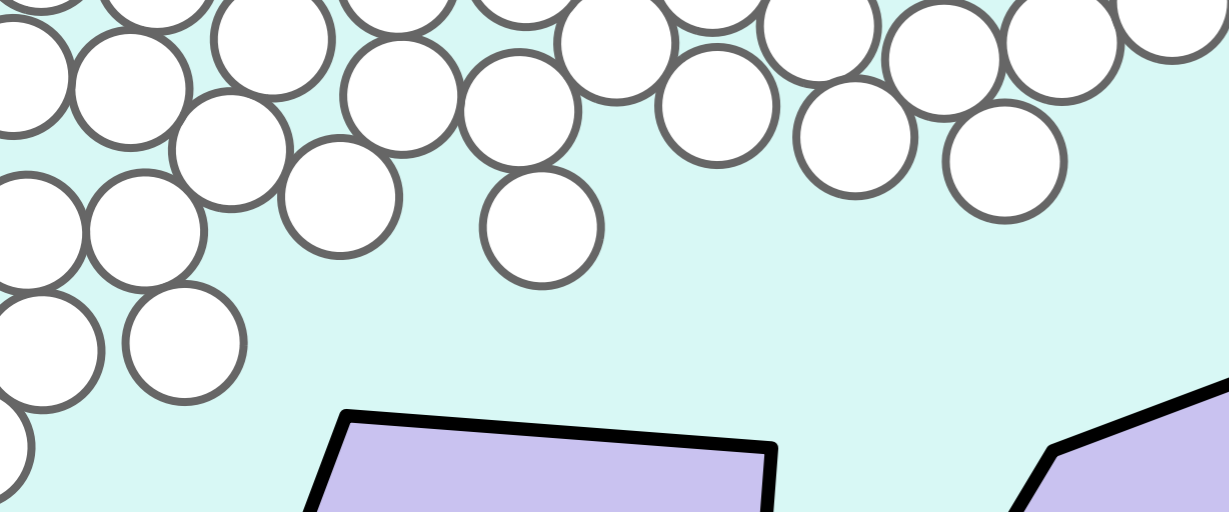


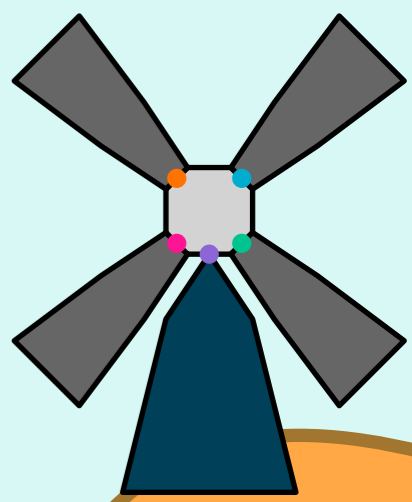
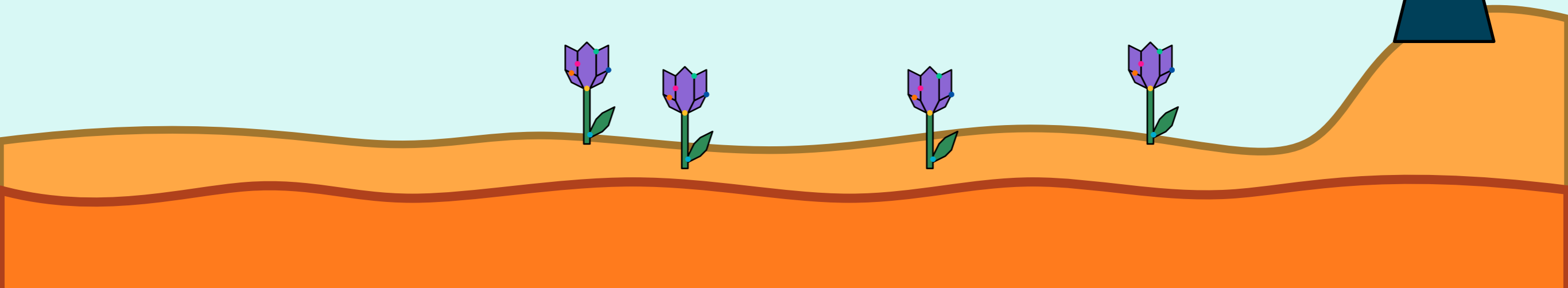
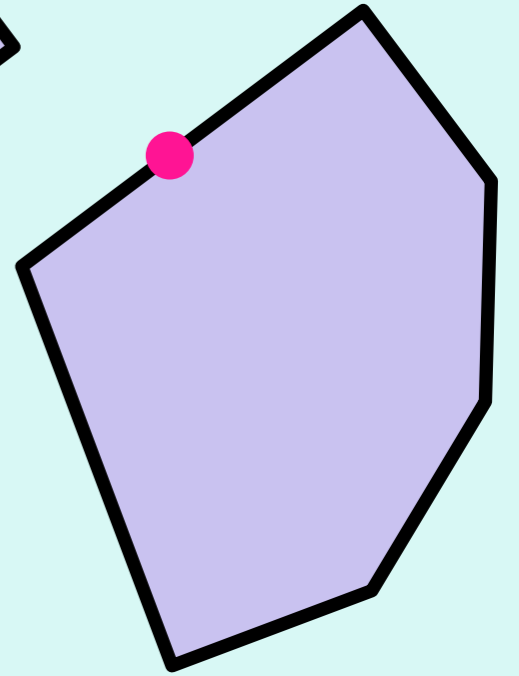
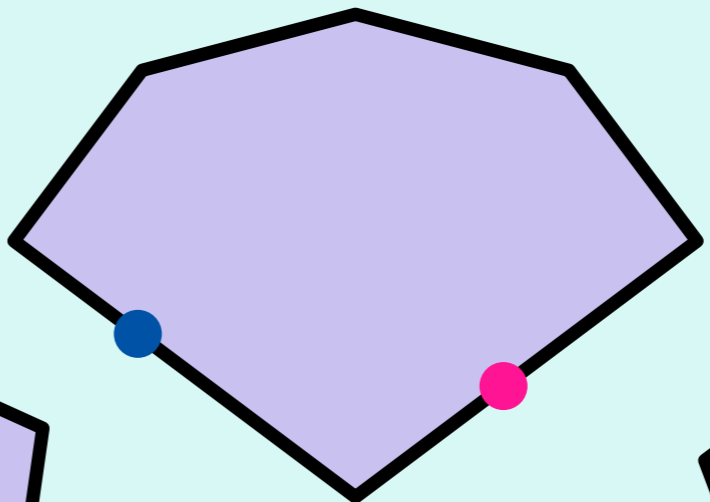
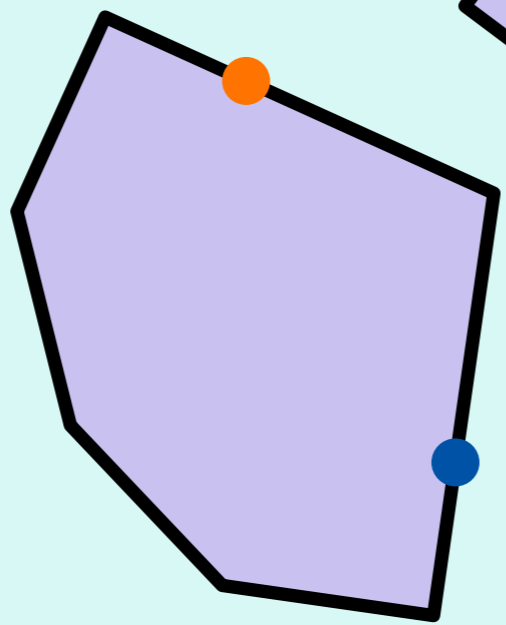
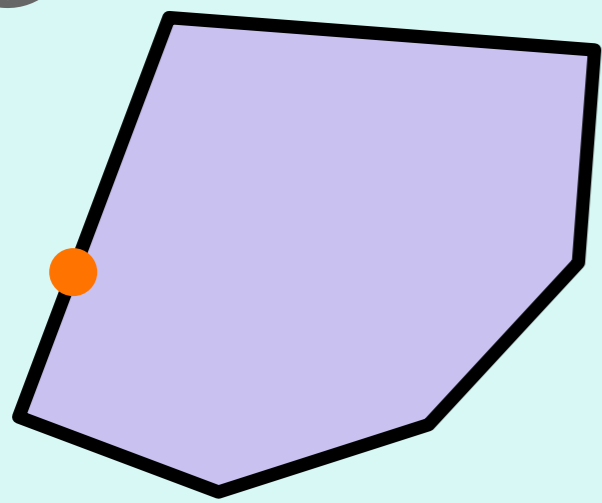
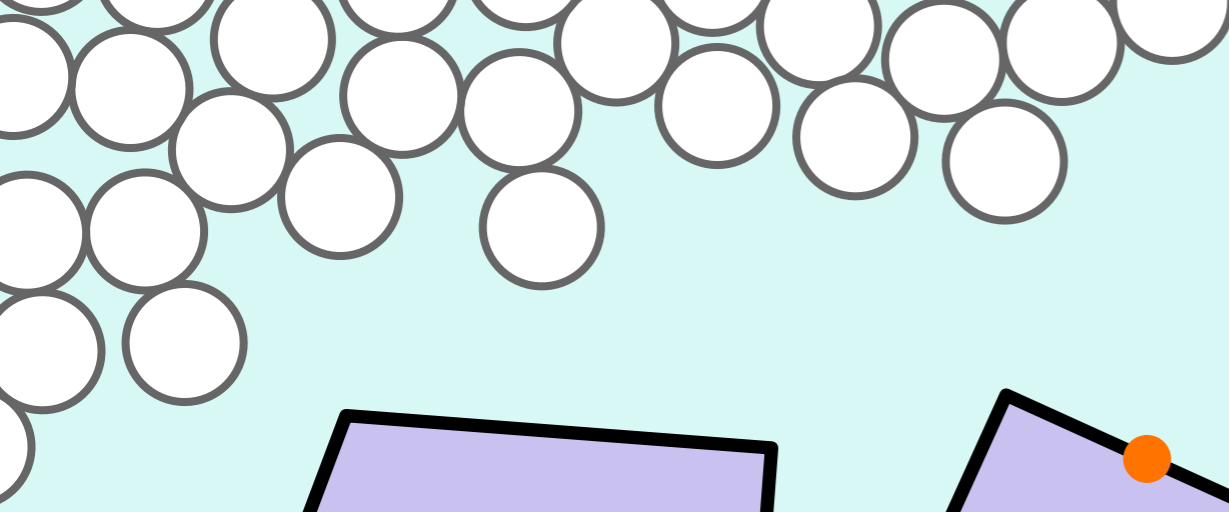


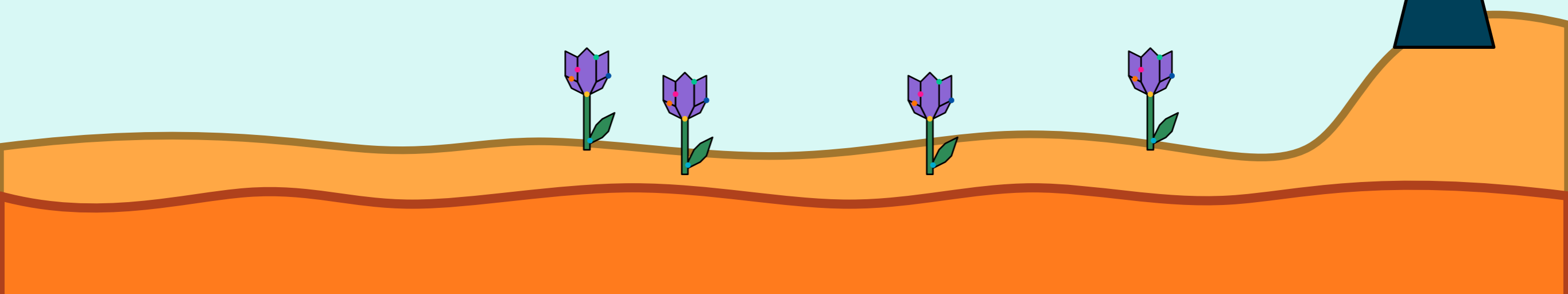
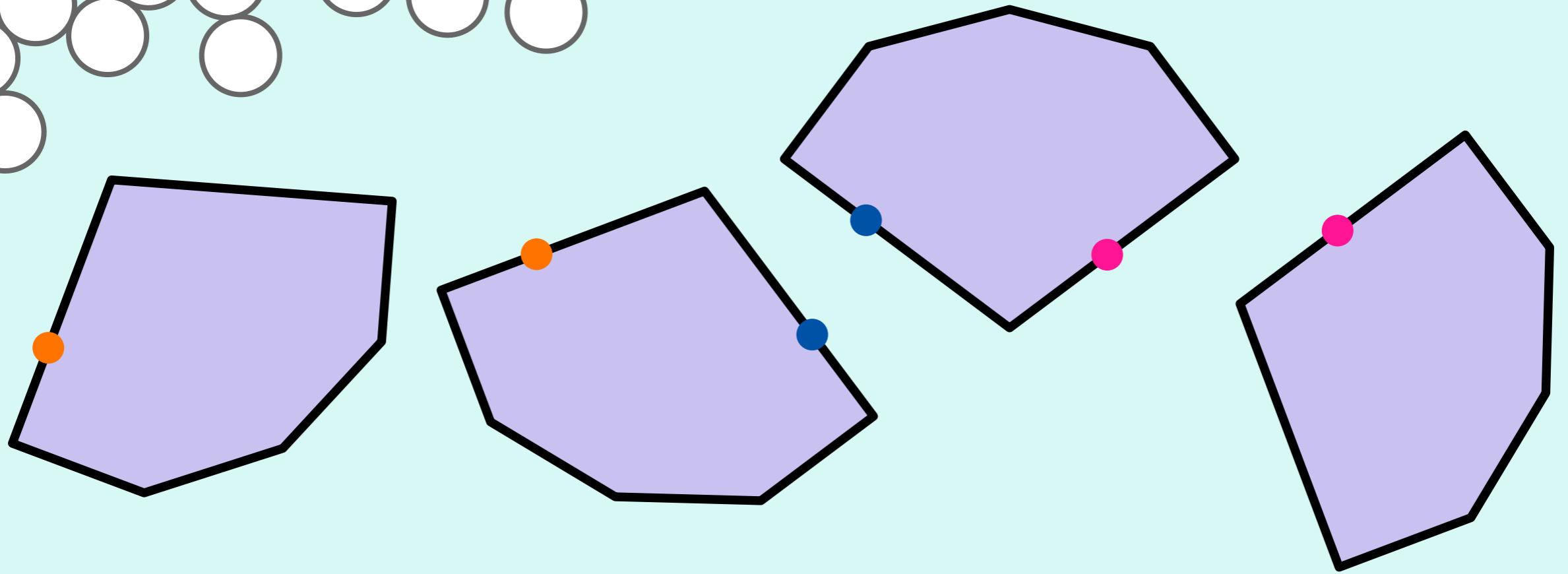
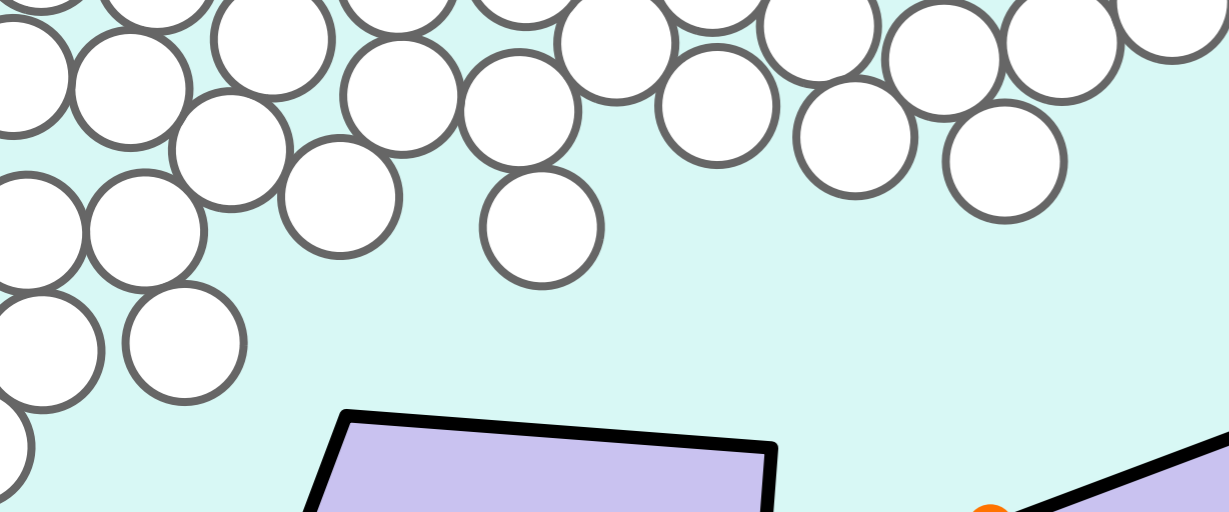


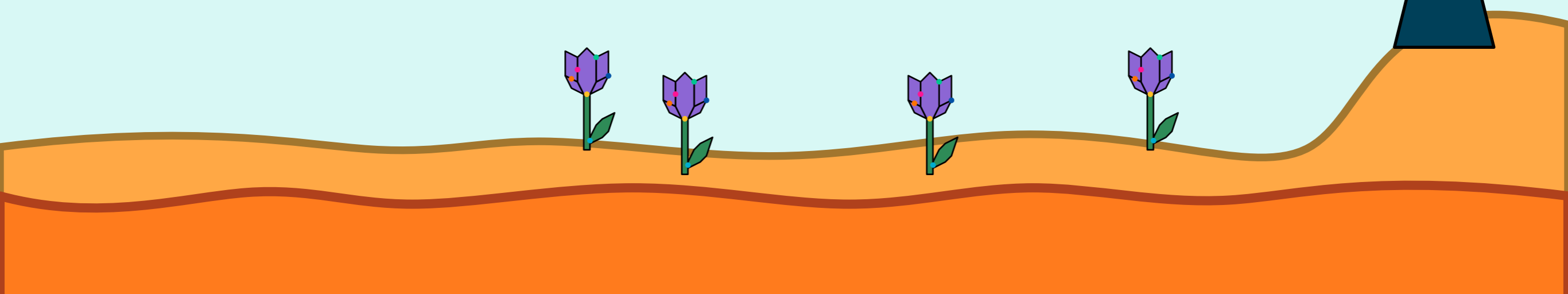
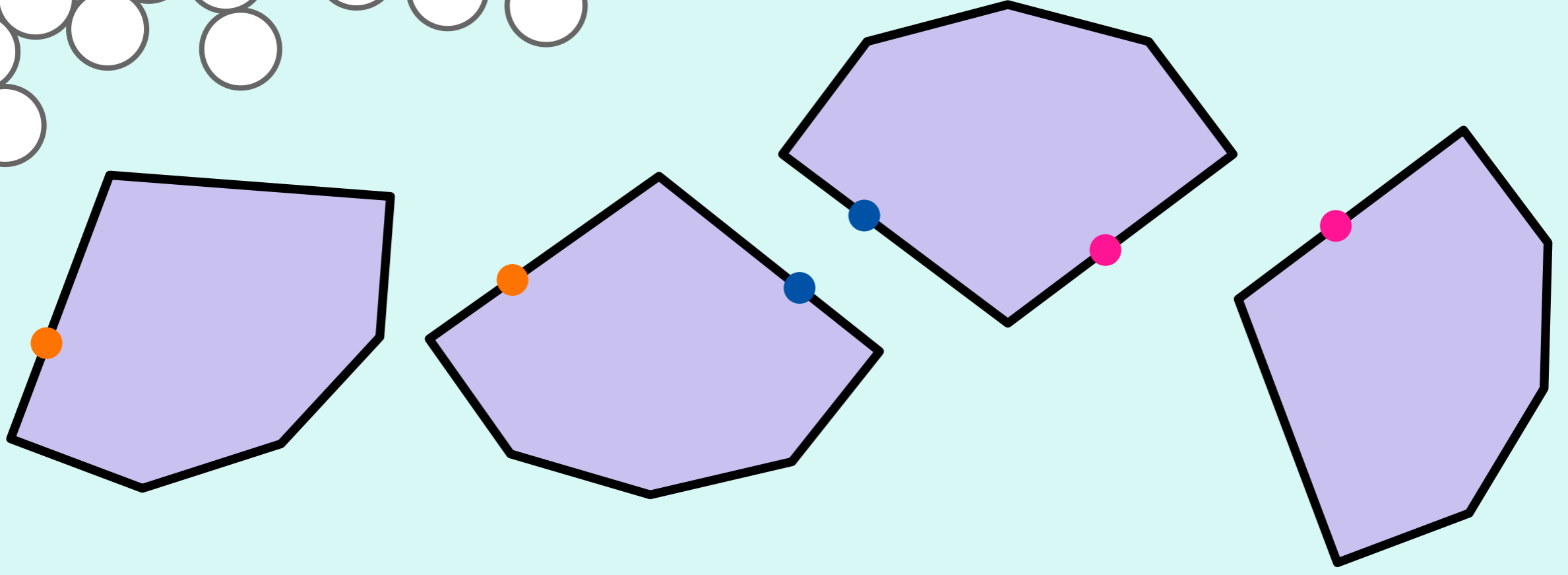
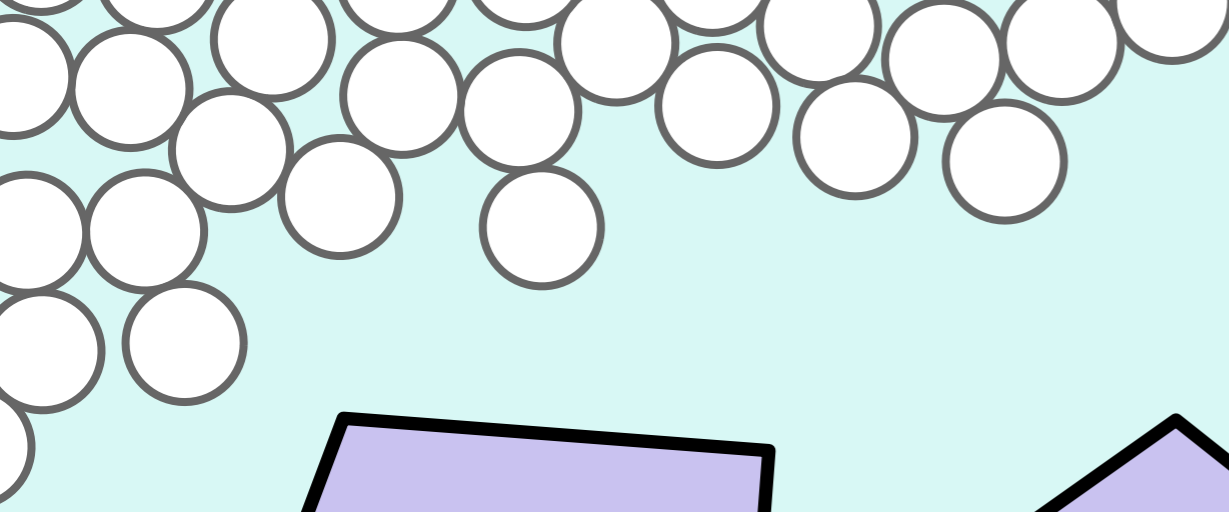


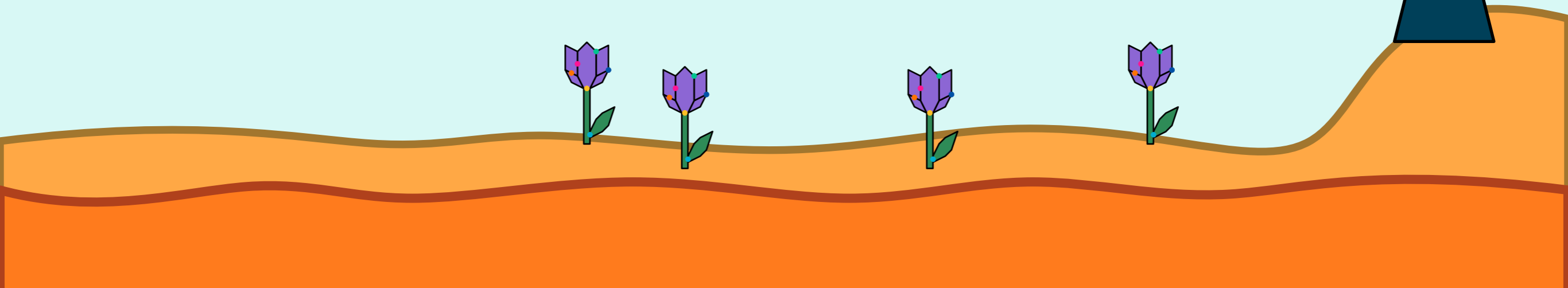
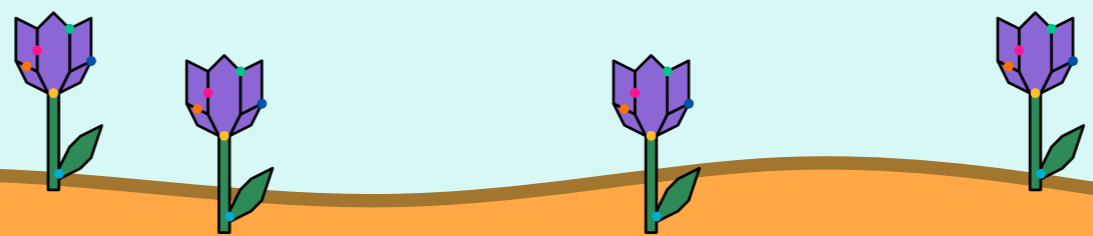
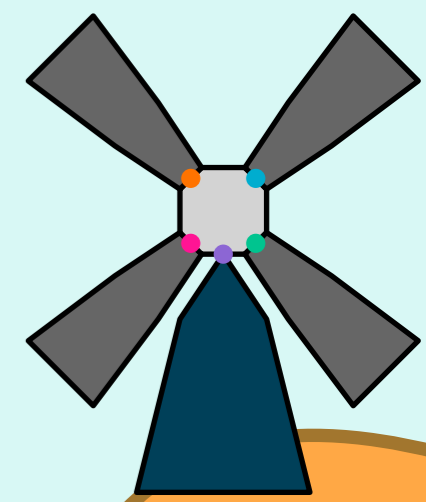
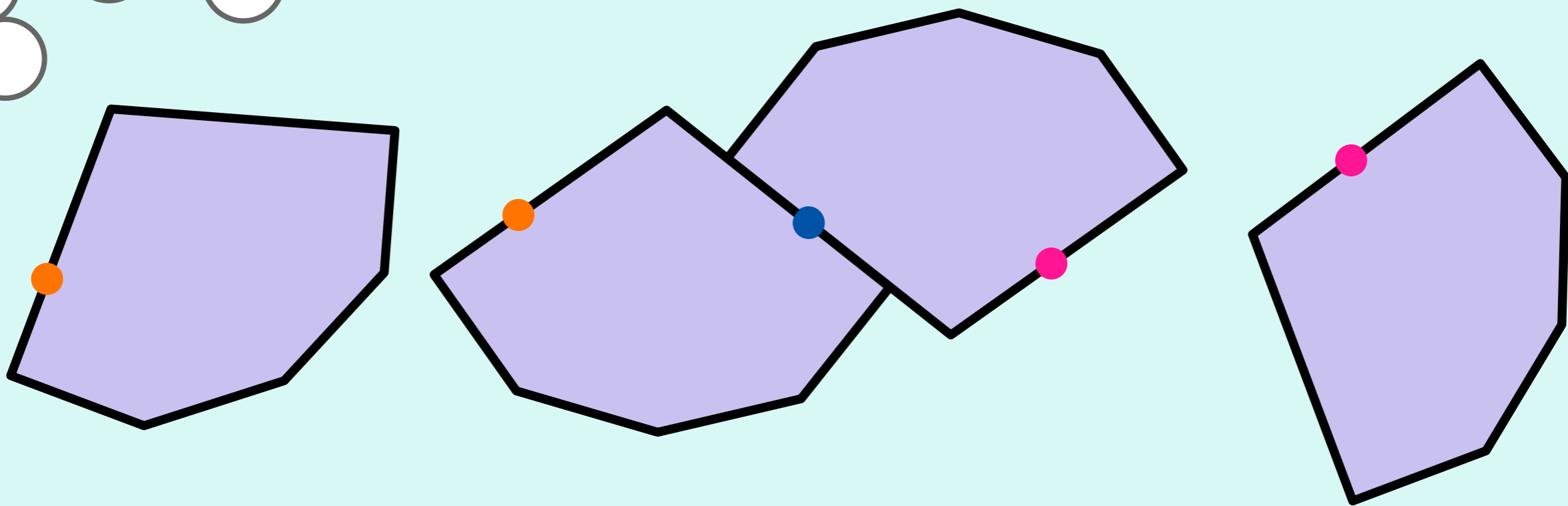
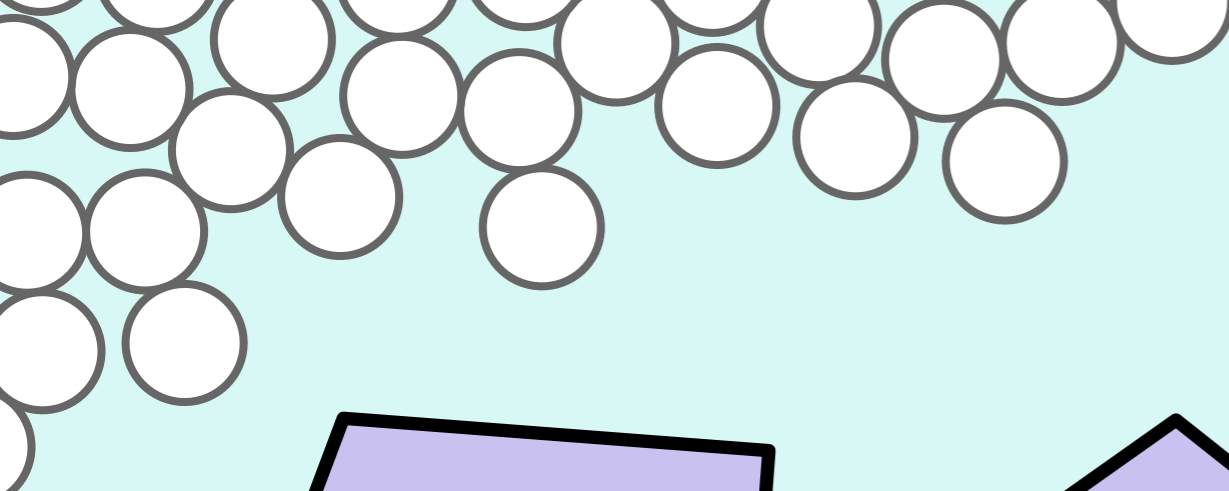


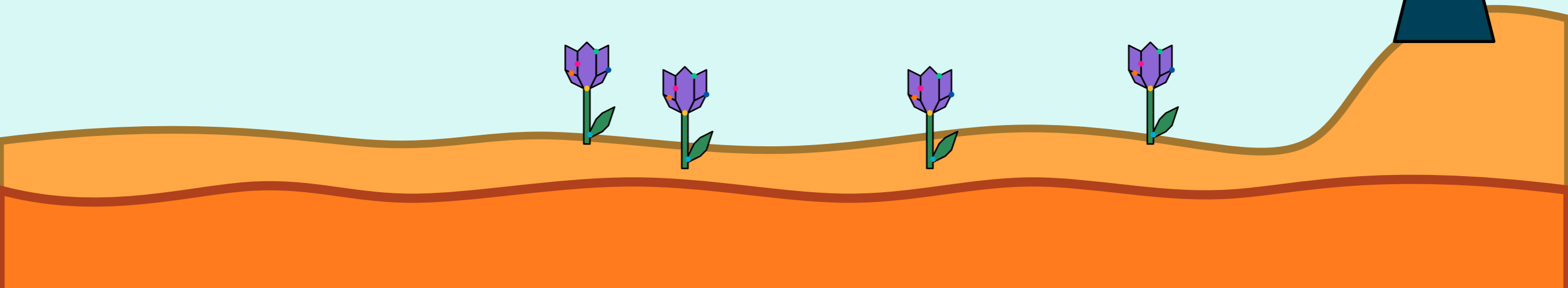
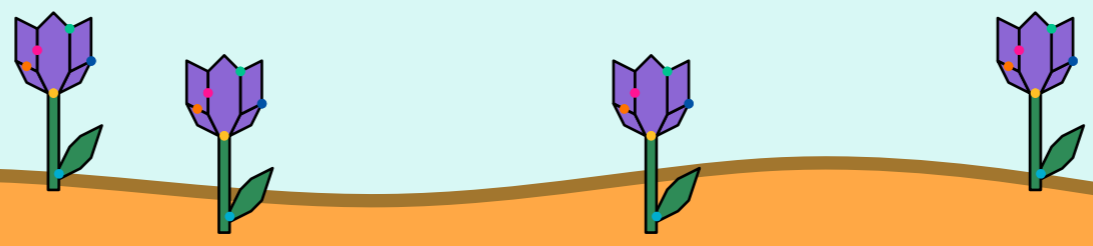
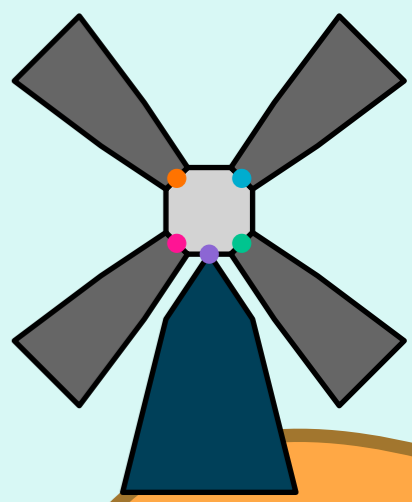
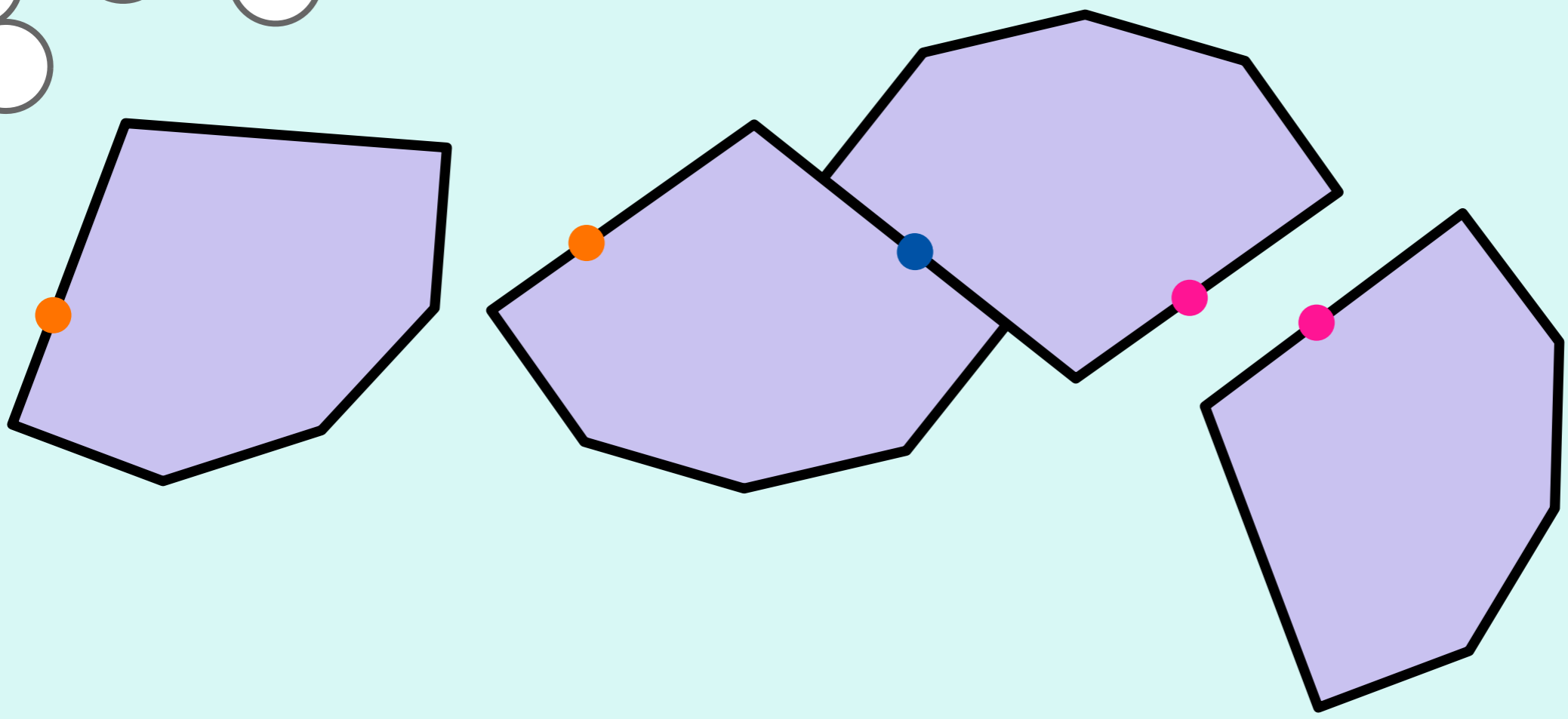
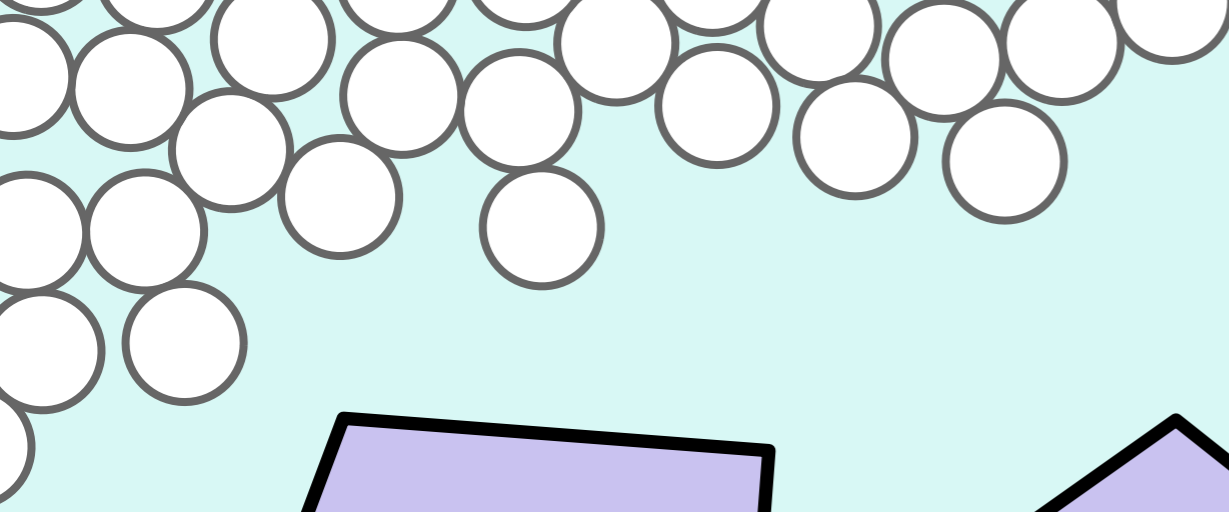


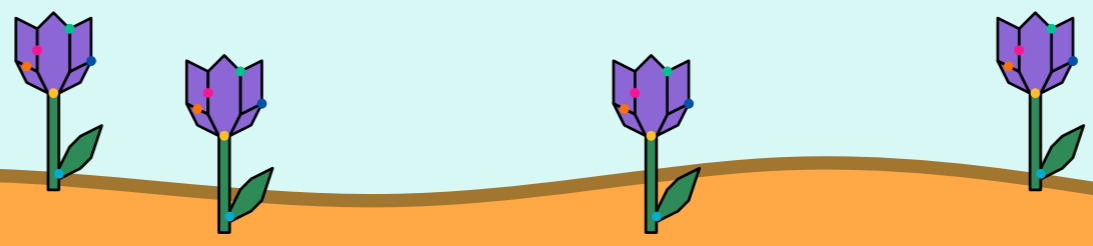
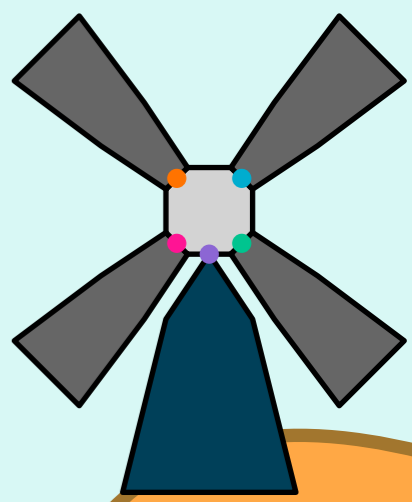
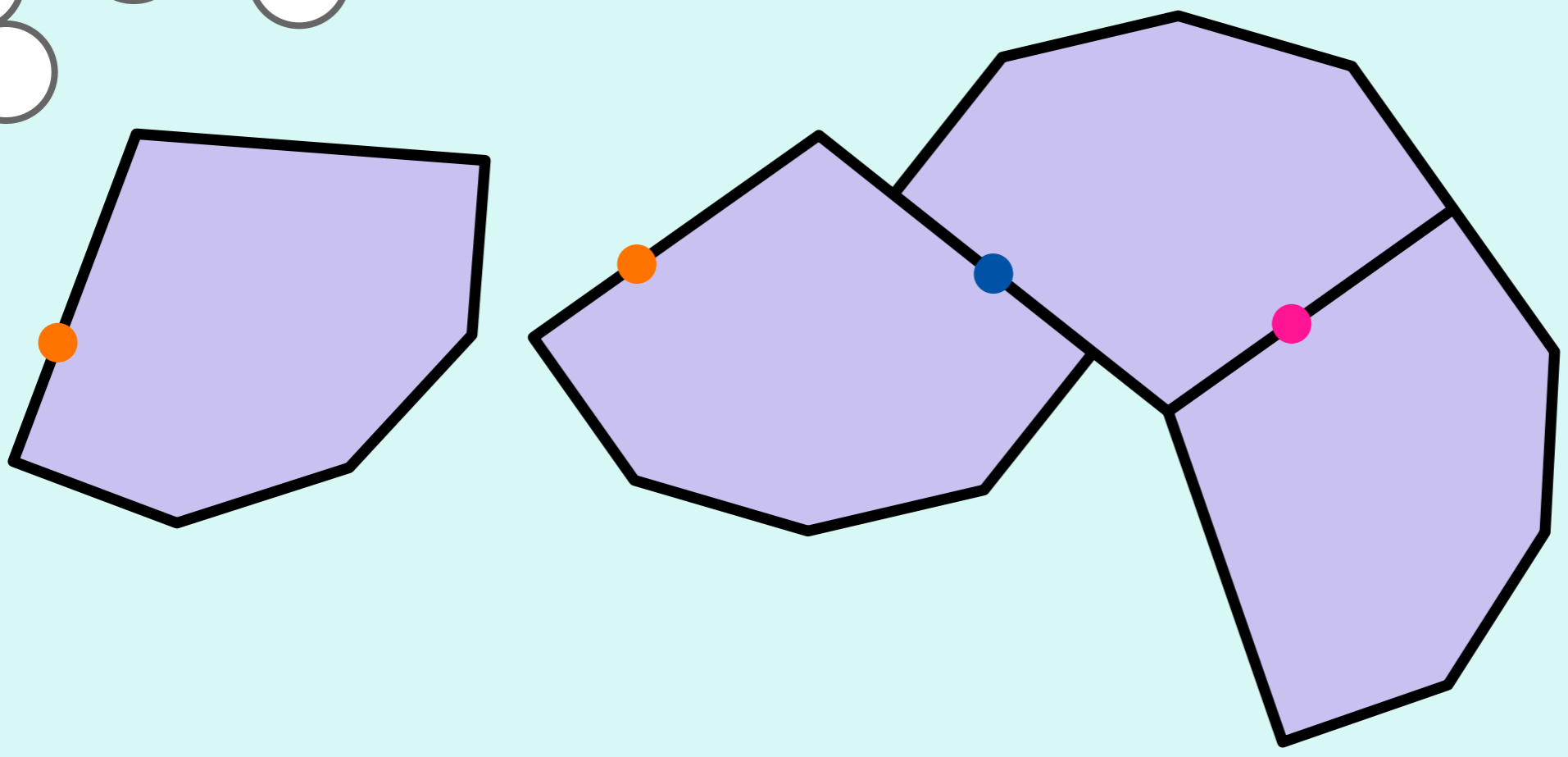
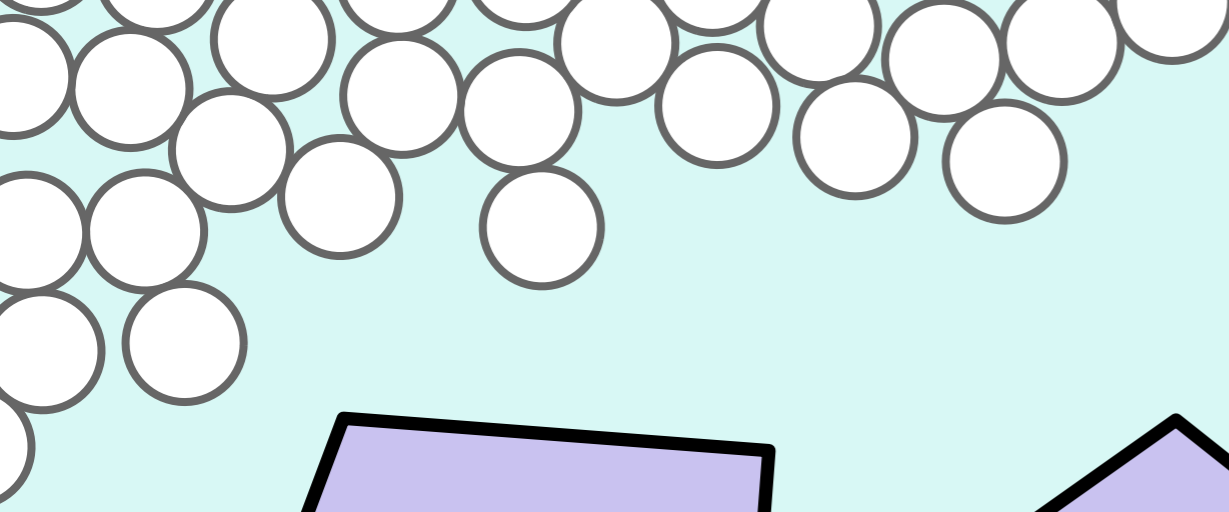


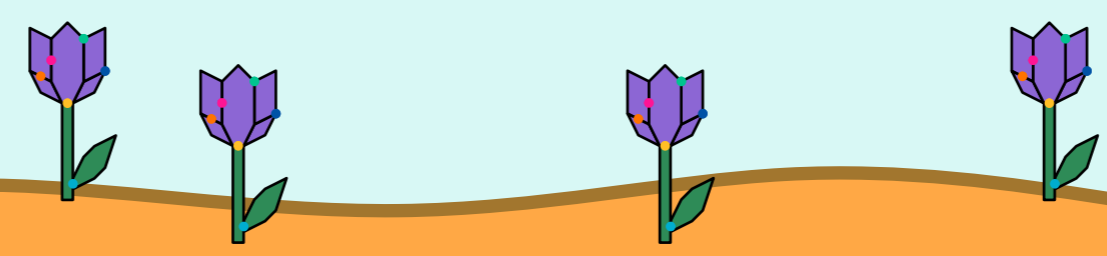
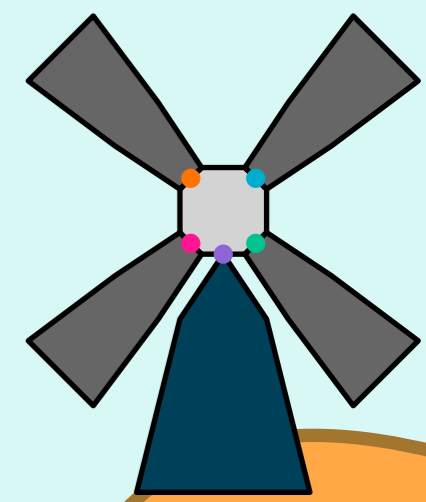
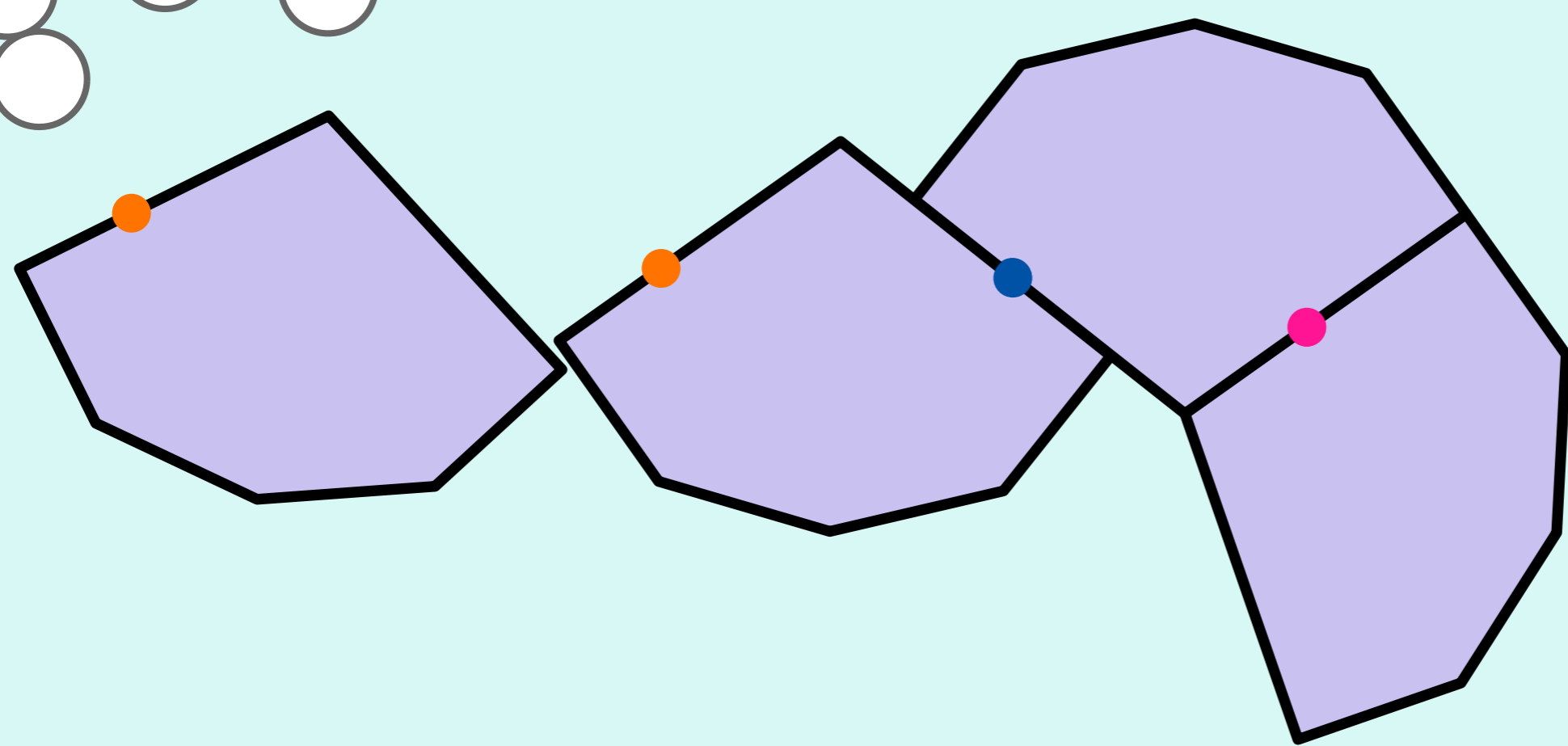
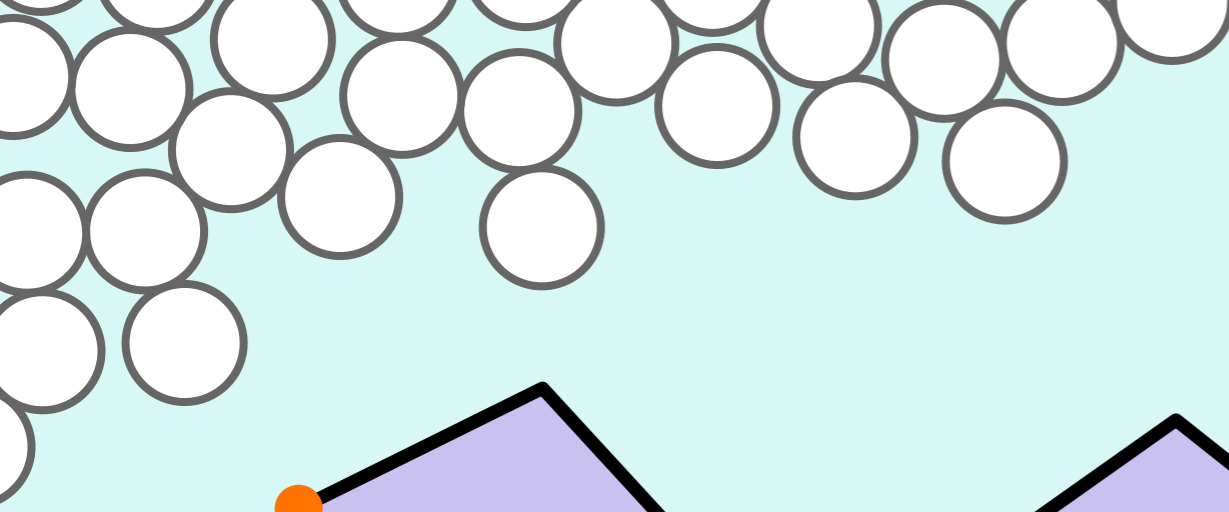


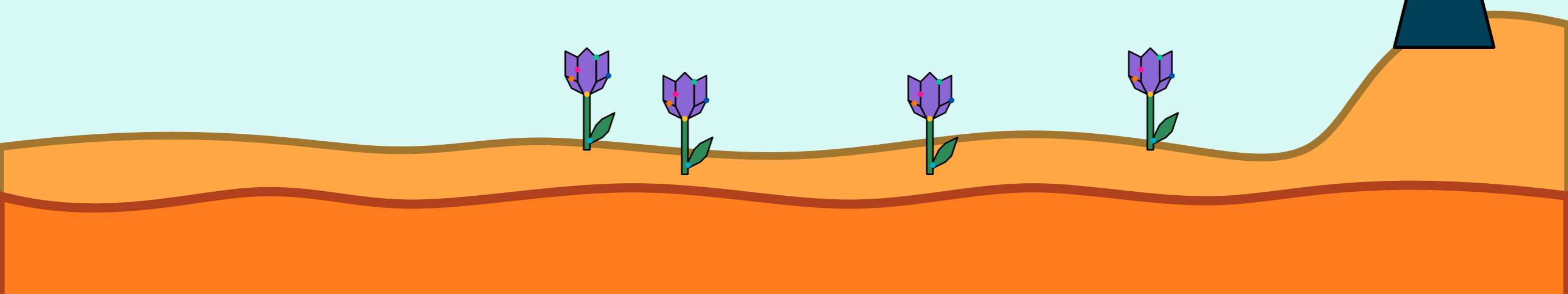
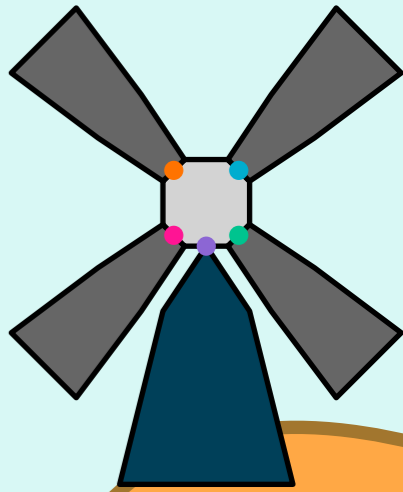
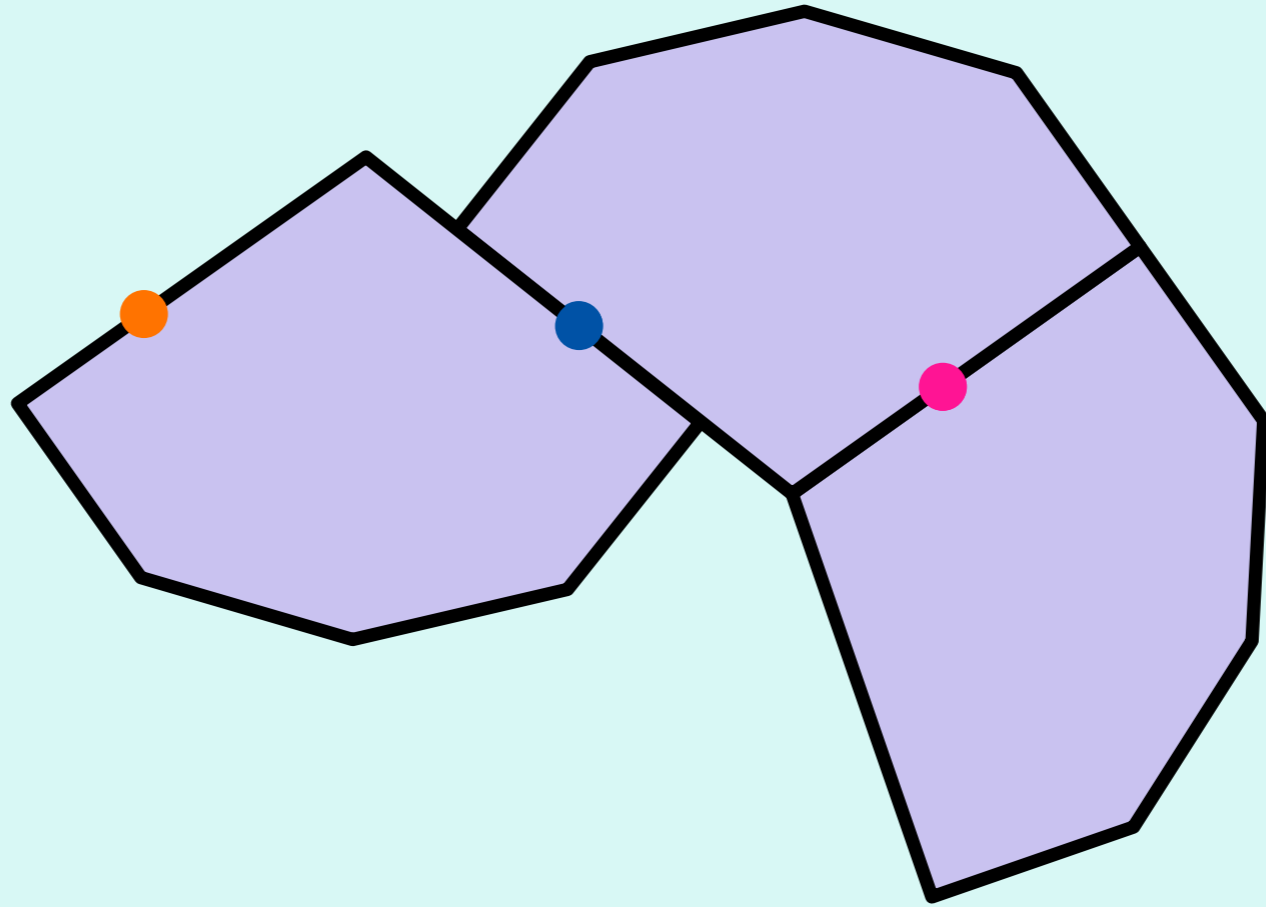
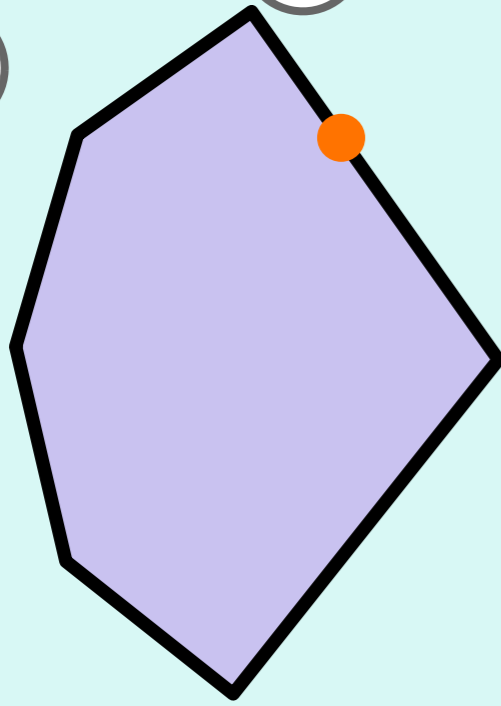
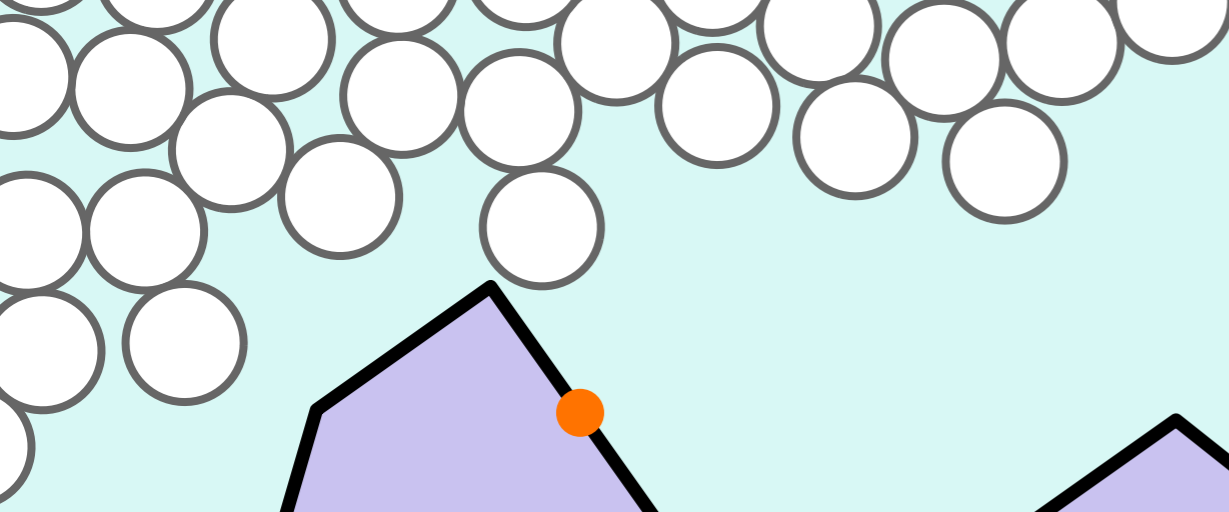


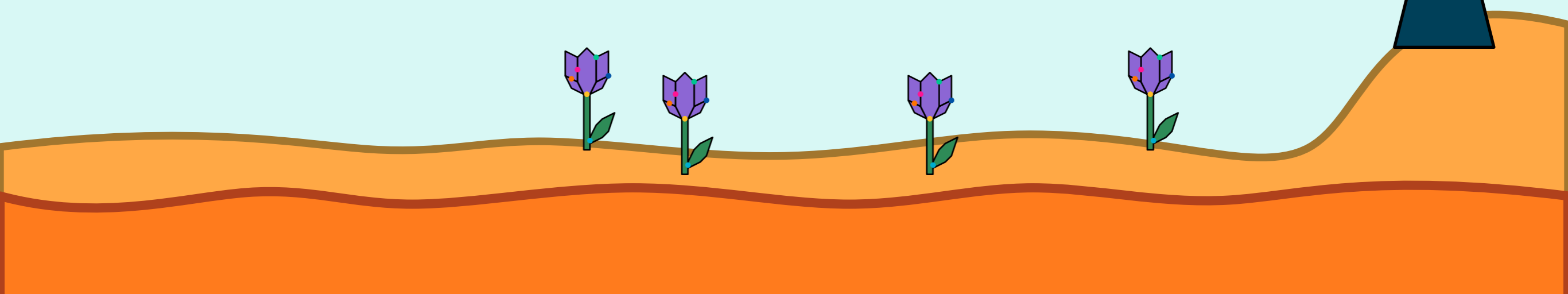
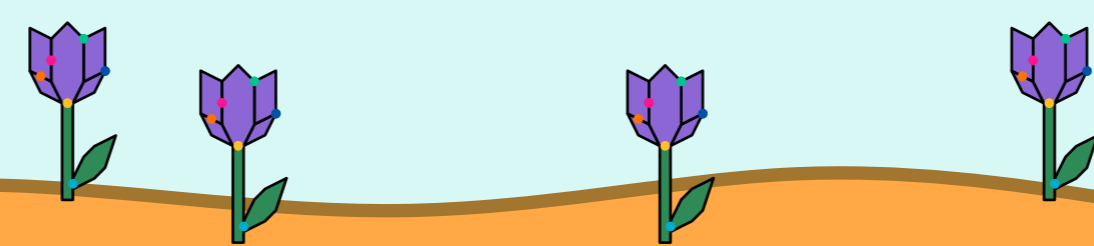
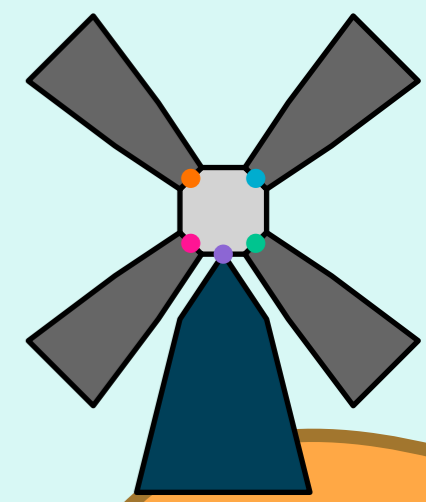
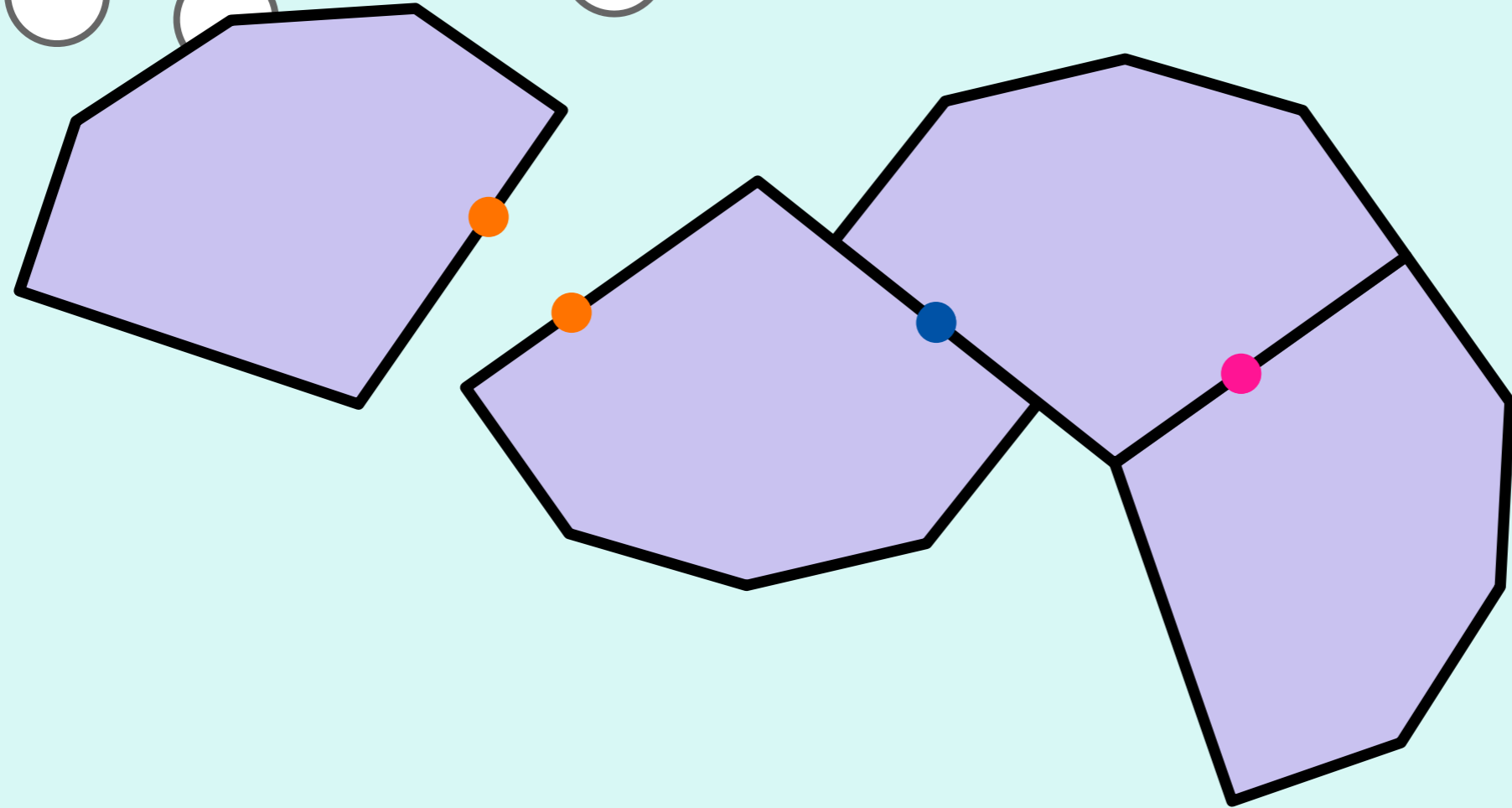
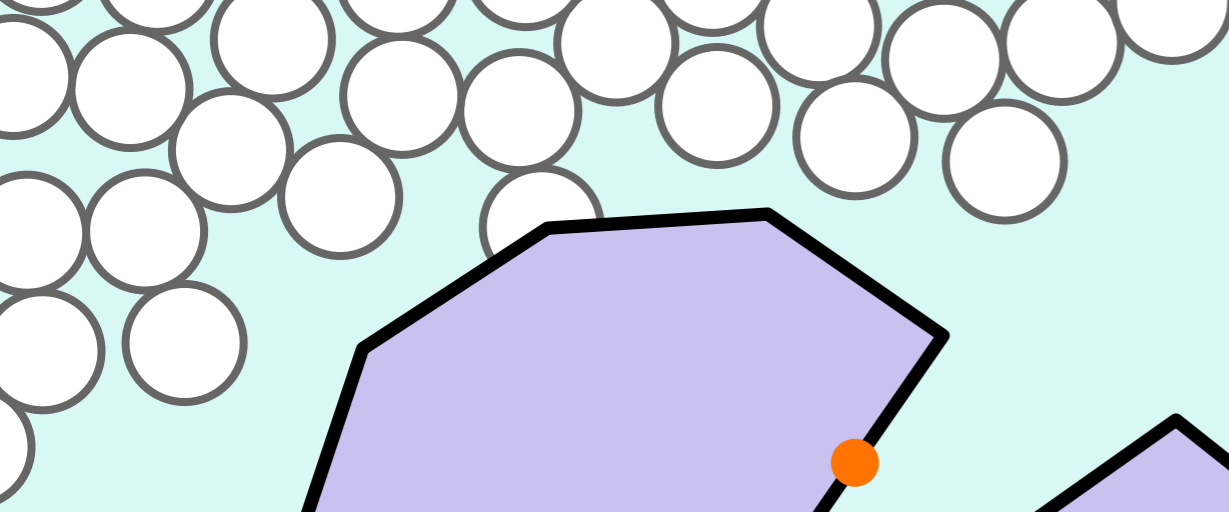


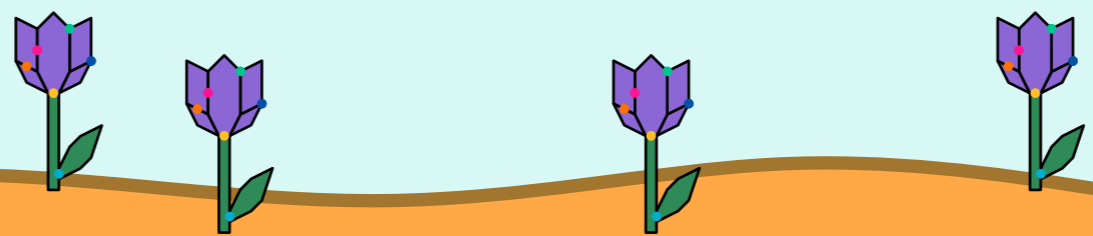
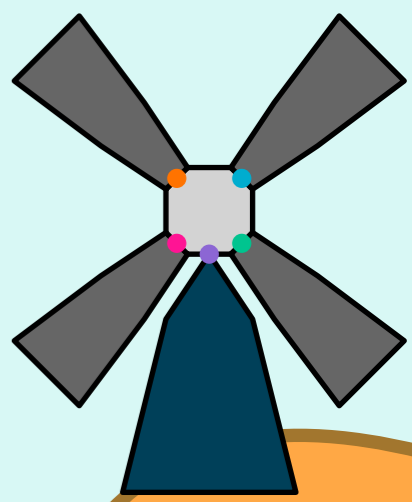
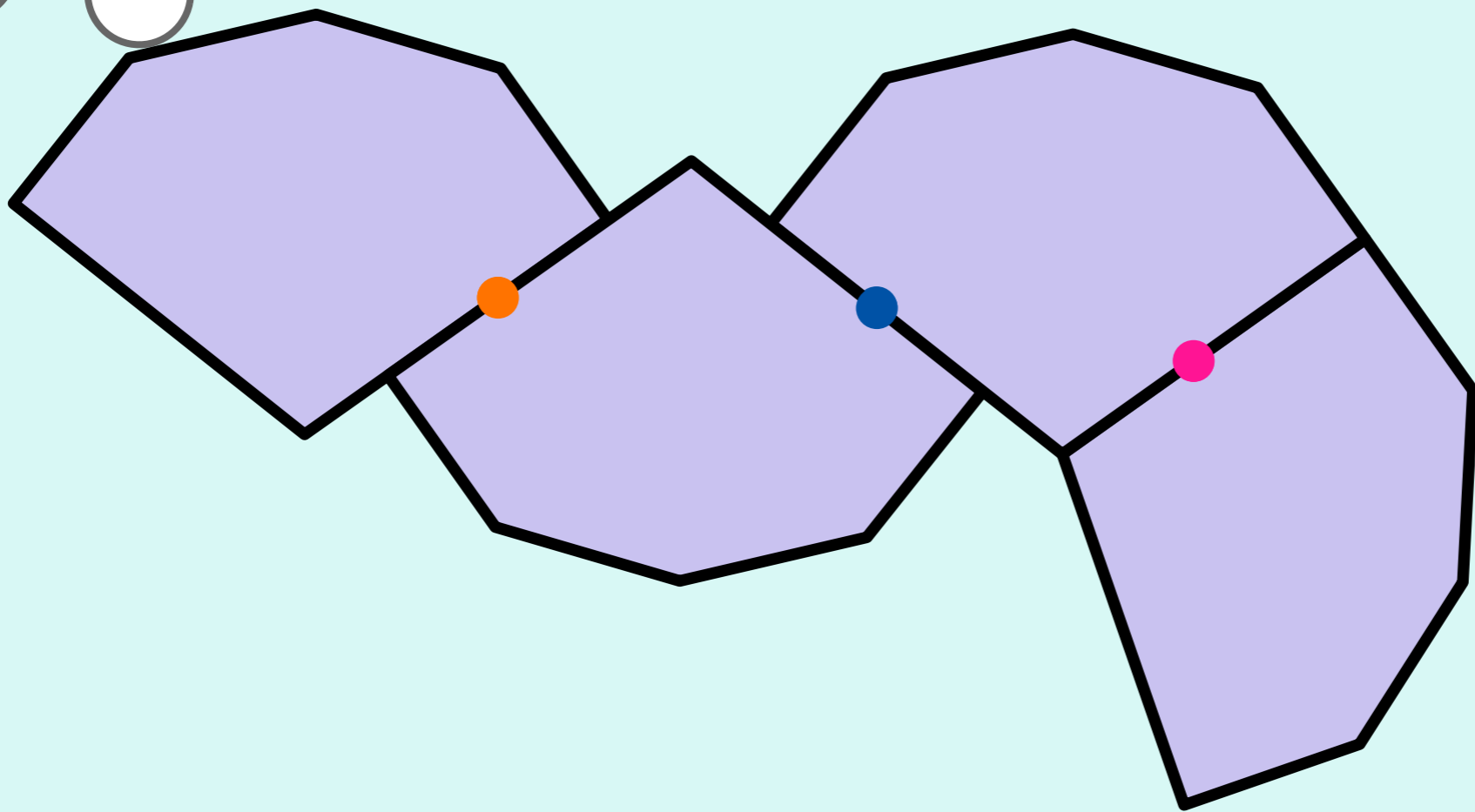
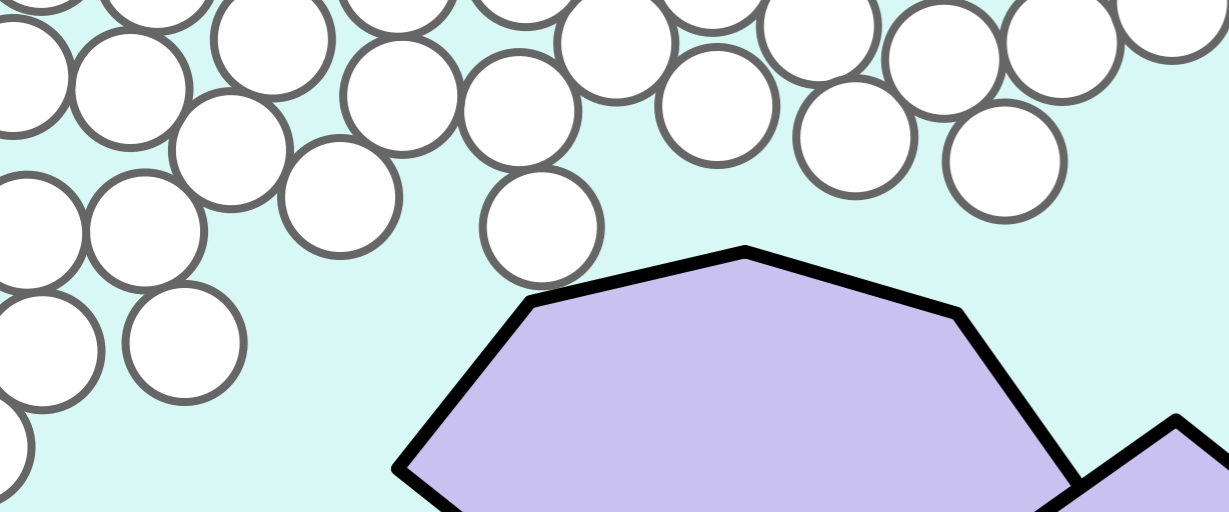


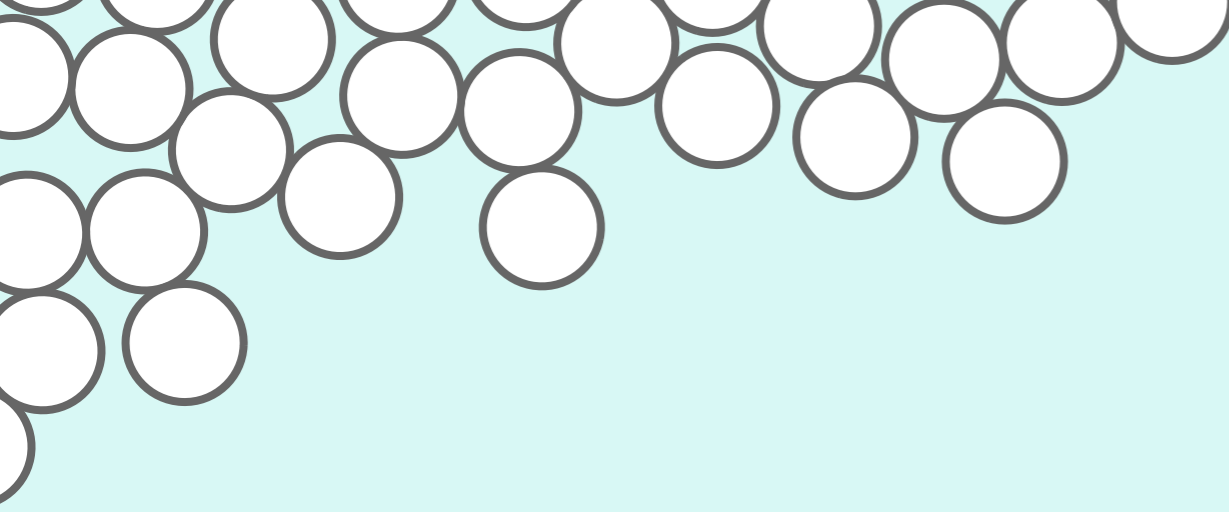




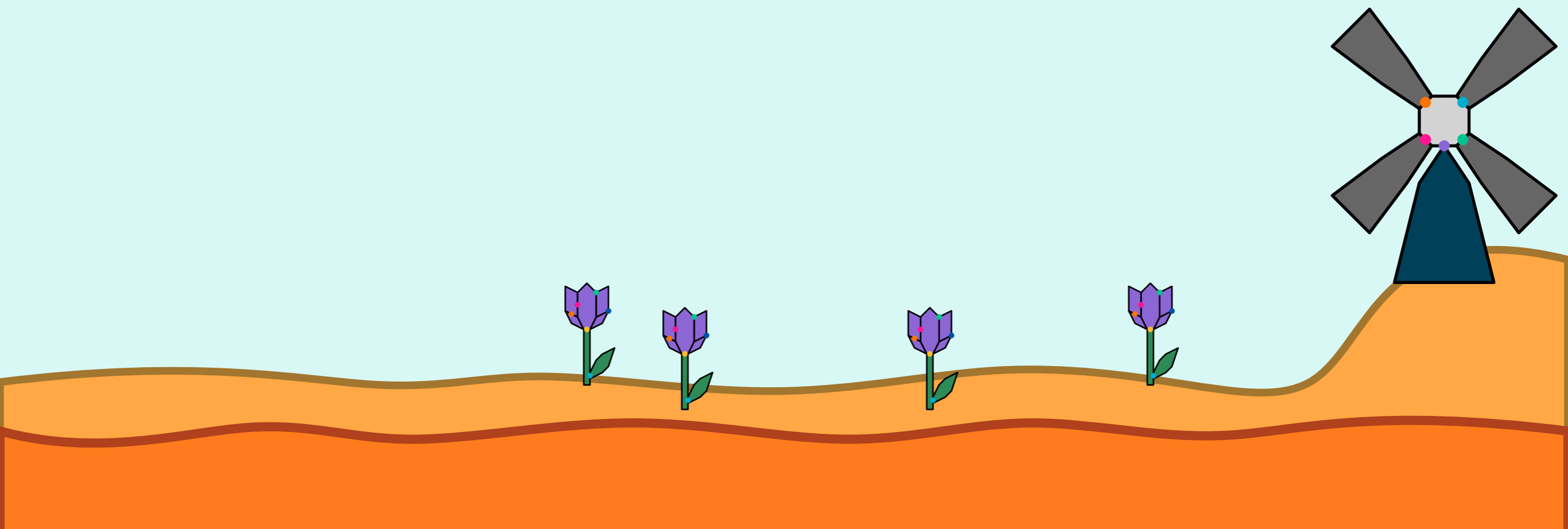


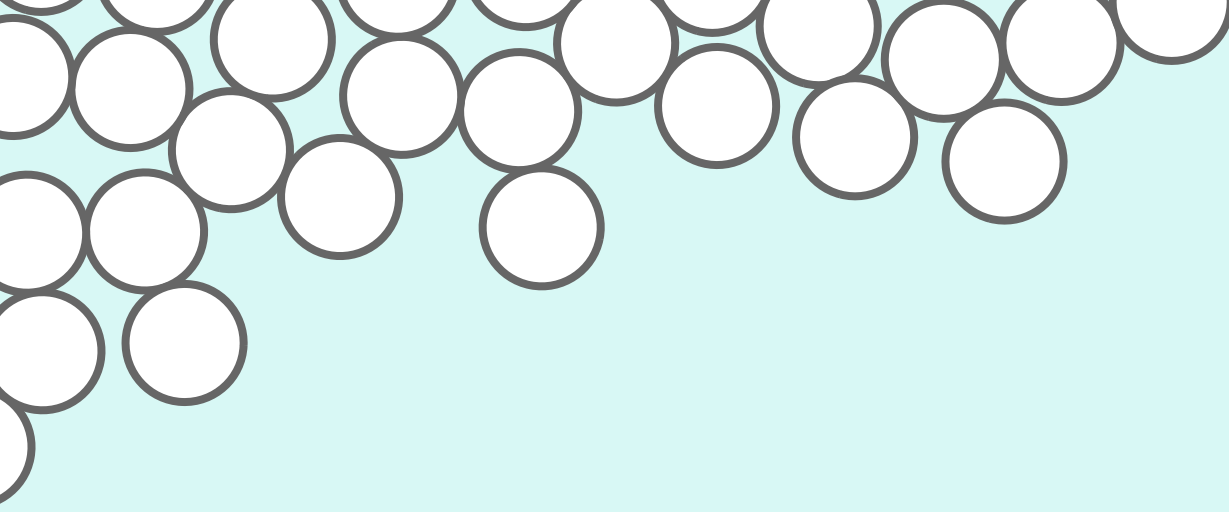




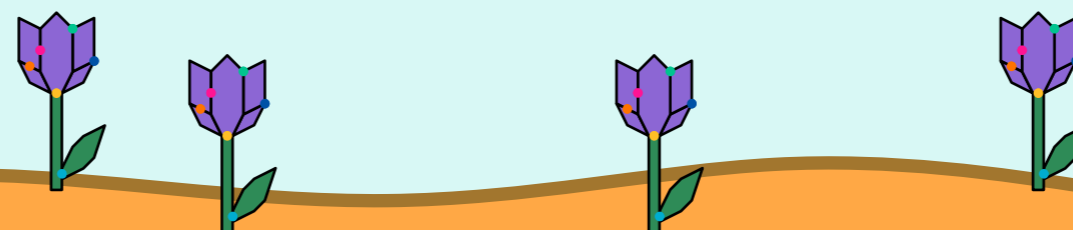
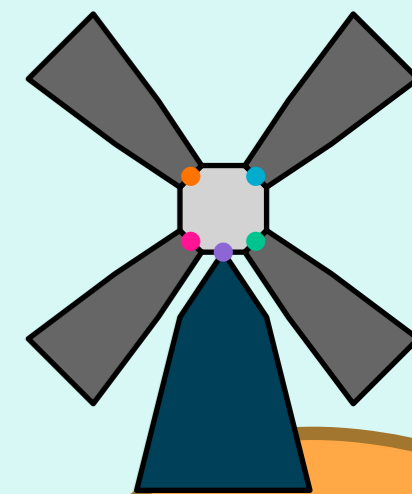


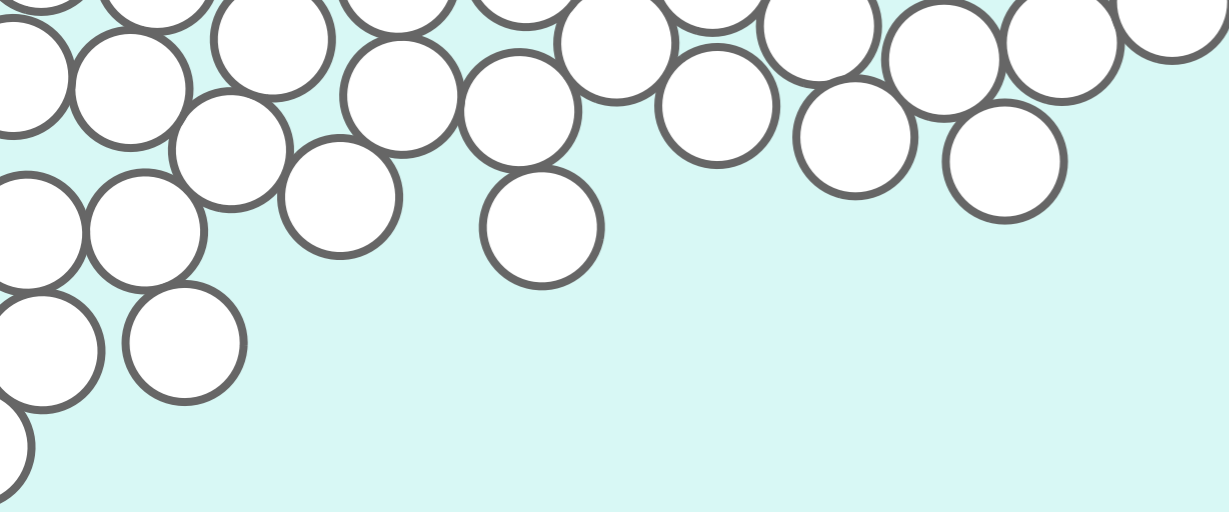
the problem



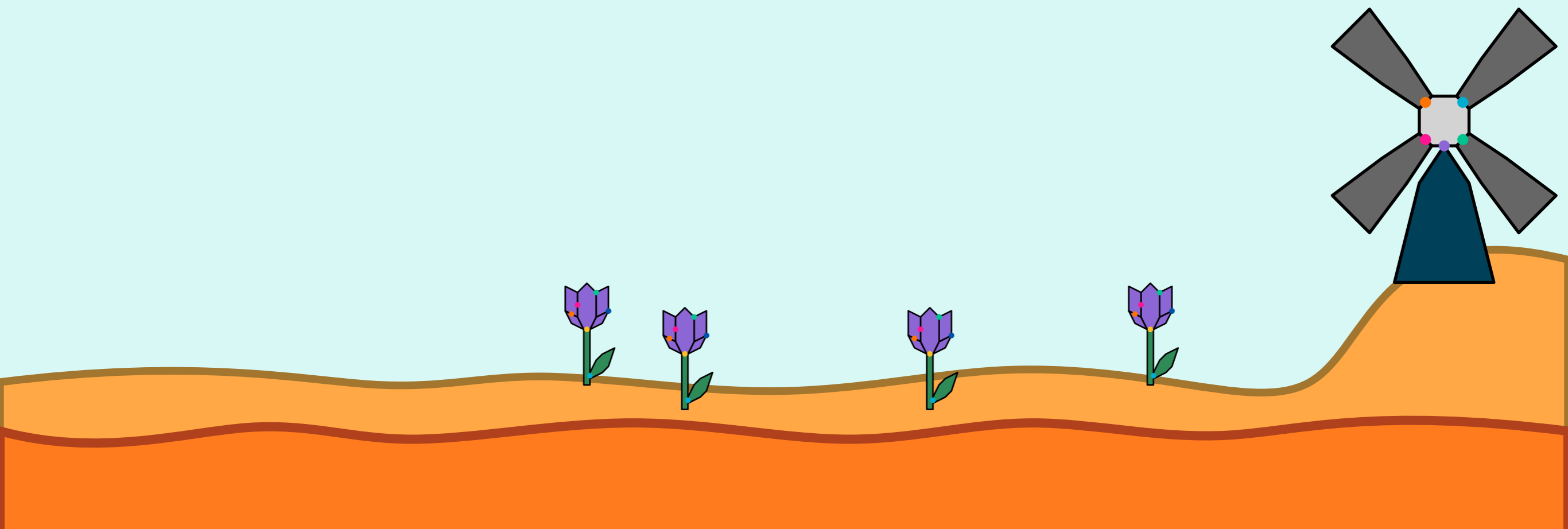


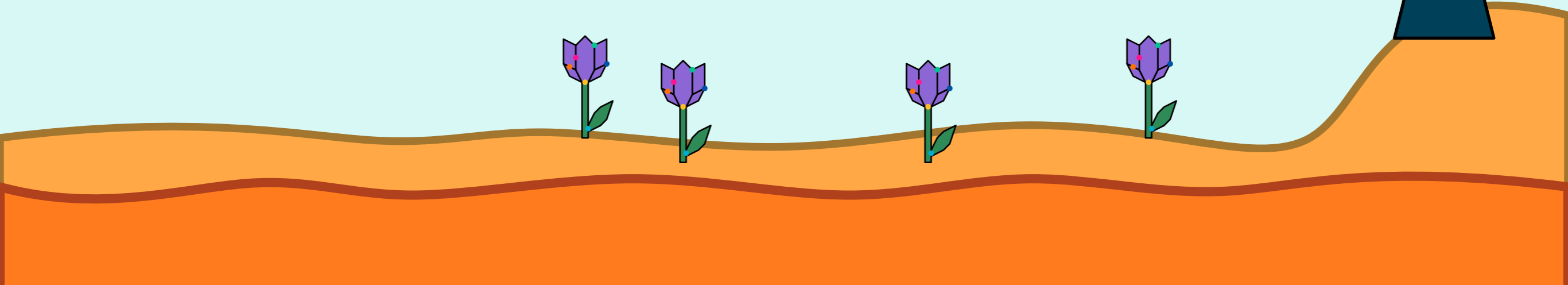
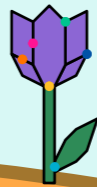
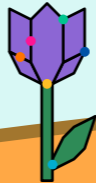
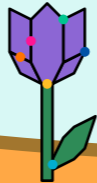
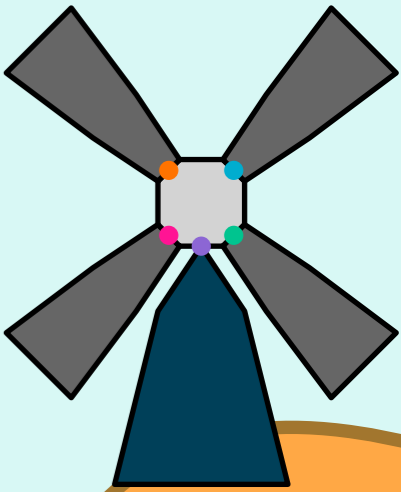
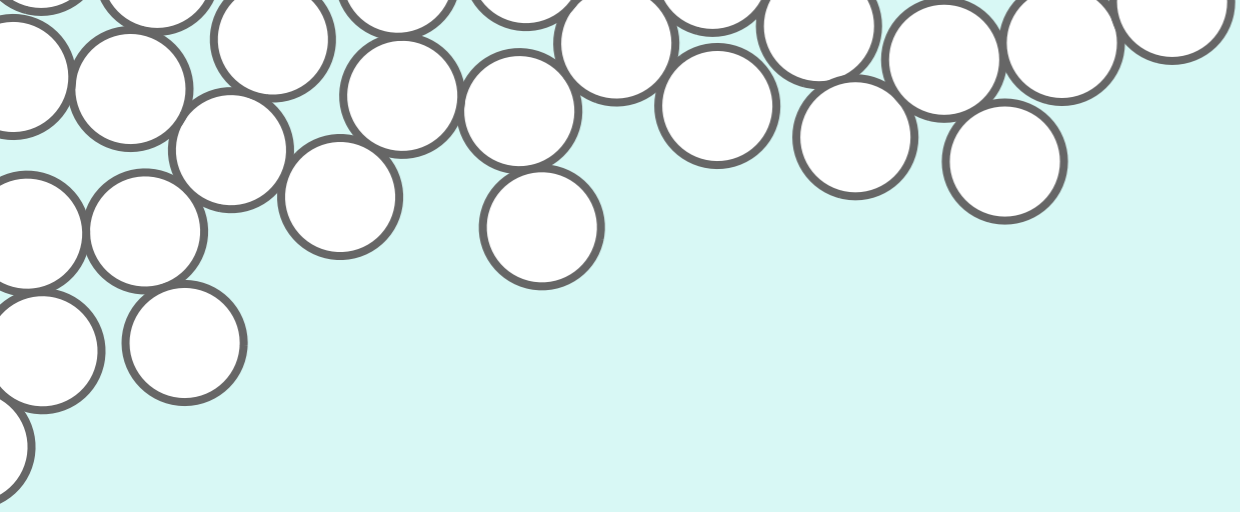
“Given a **polygonal linkage** / **touching disk system** with a **fixed** / **free** embedding, can we realise this in the plane without overlap?”

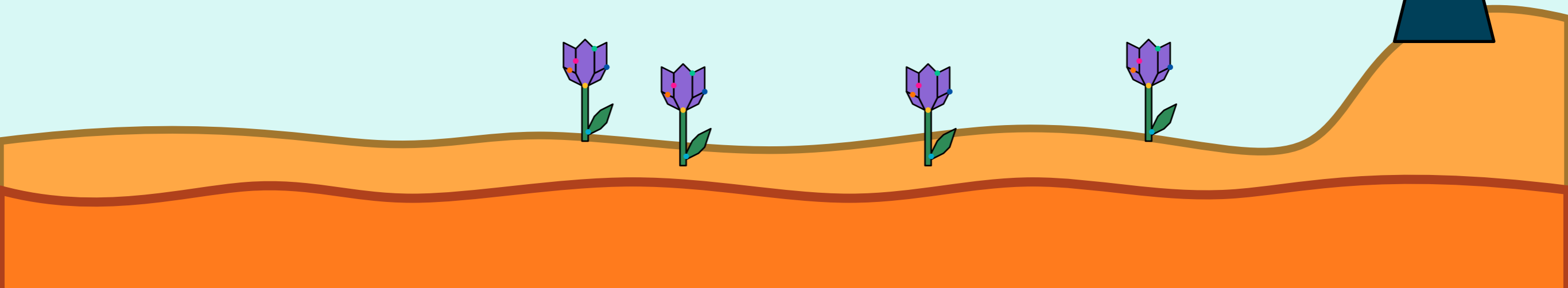
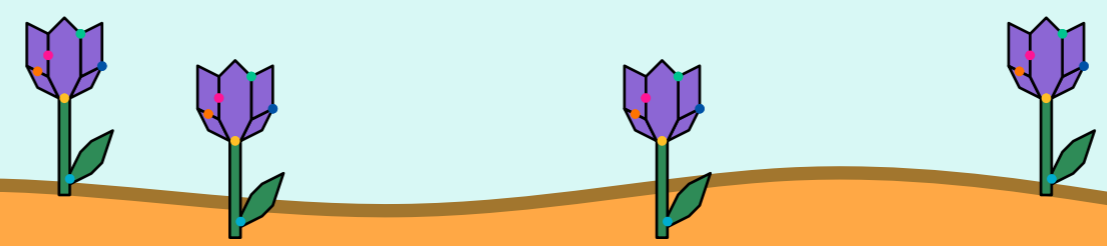
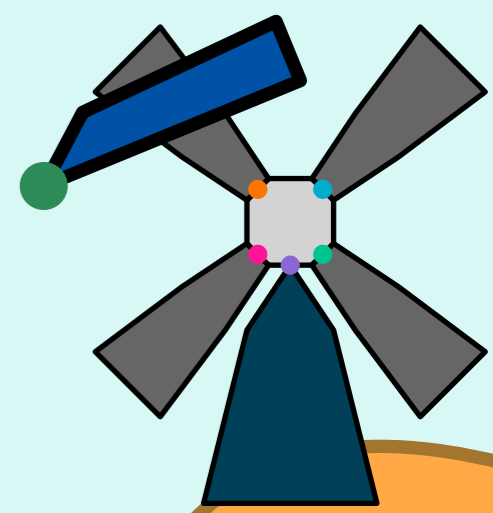
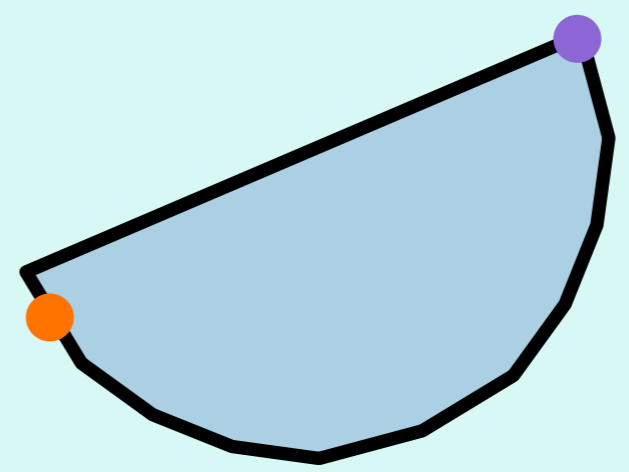
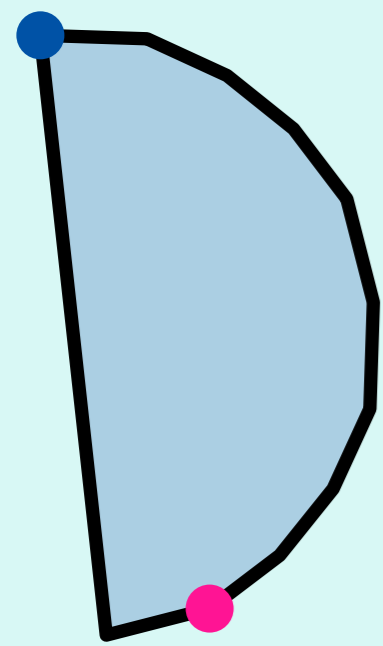
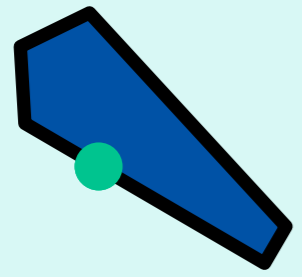
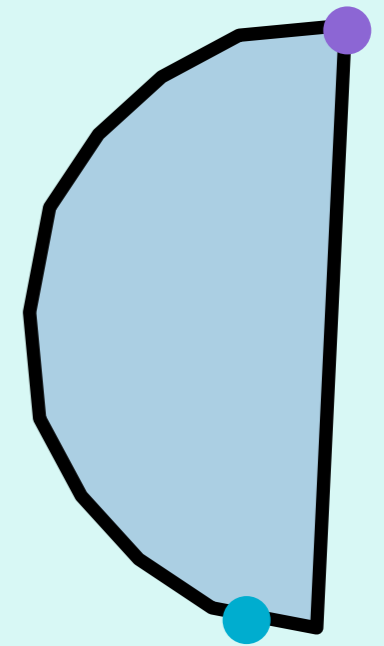
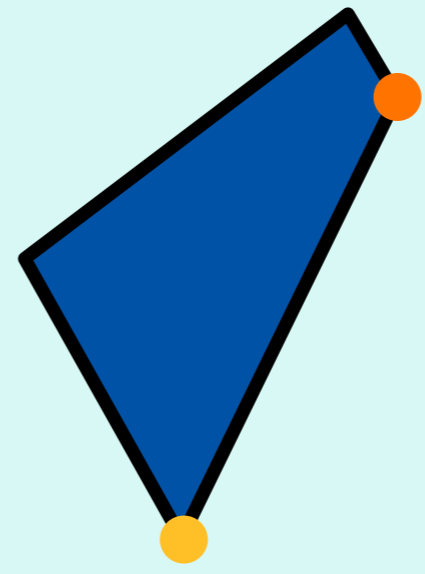
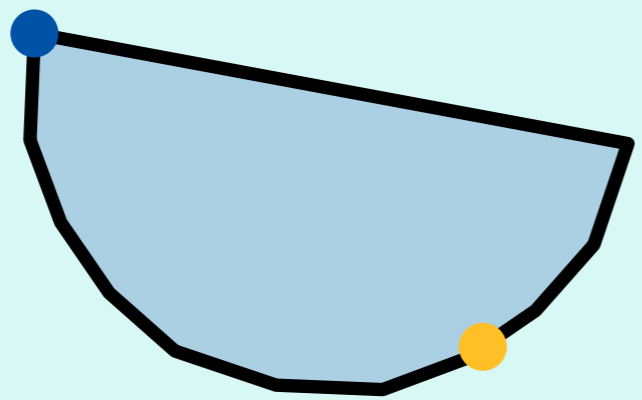
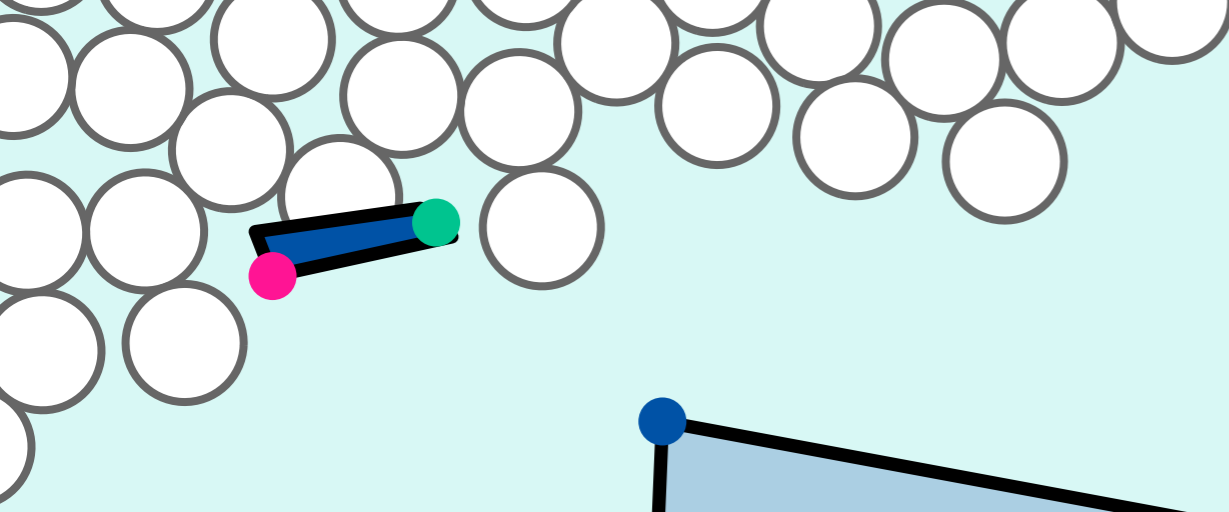


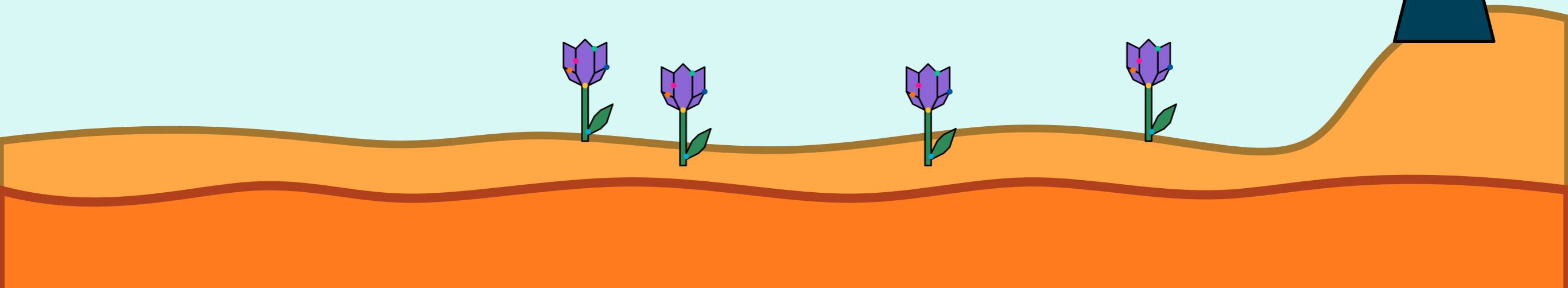
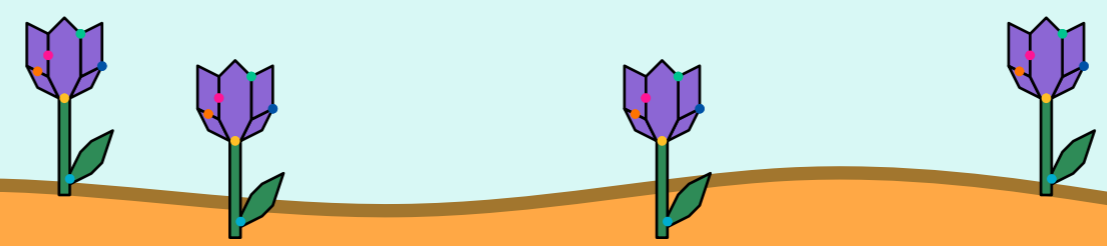
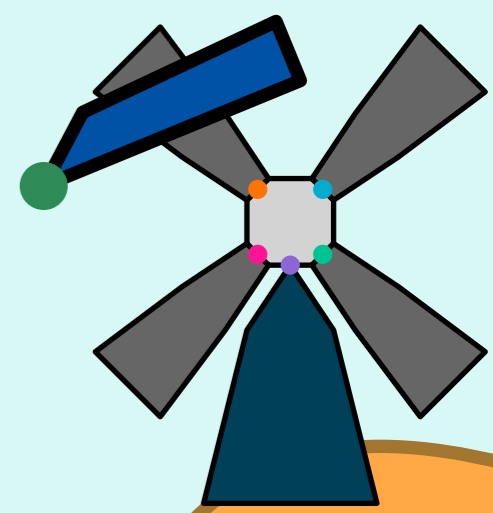
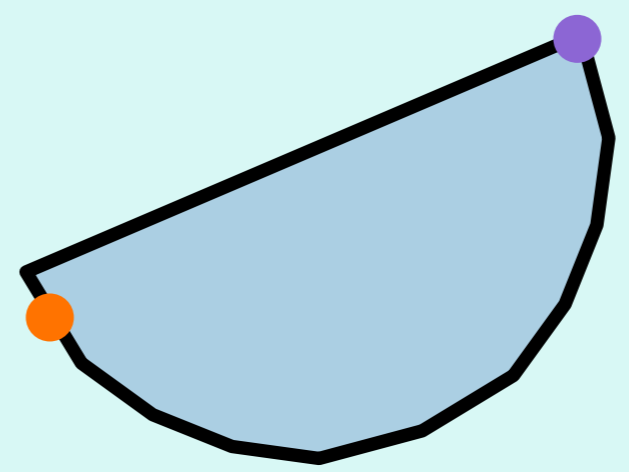
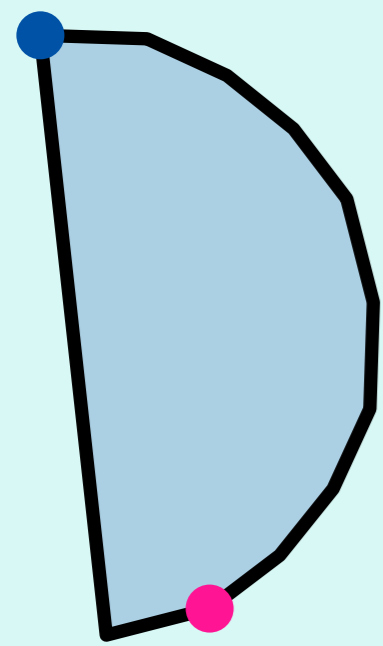
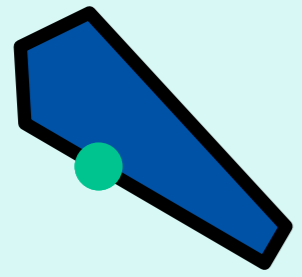
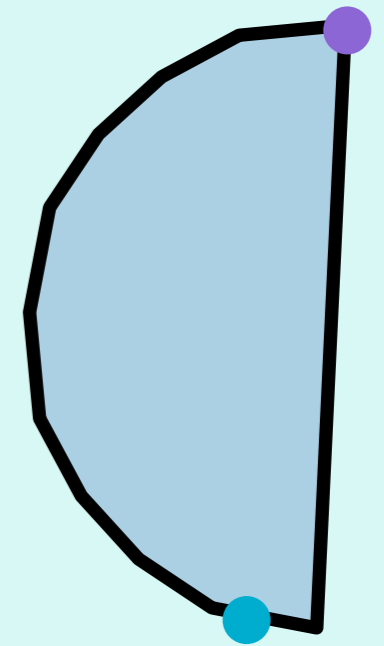
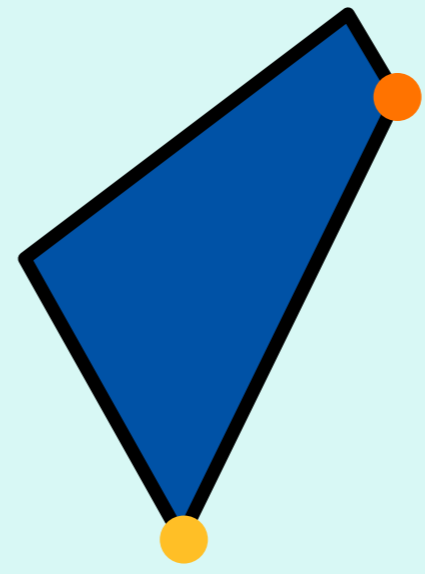
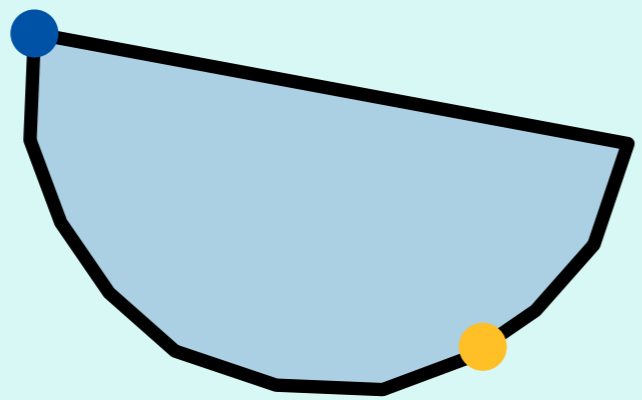
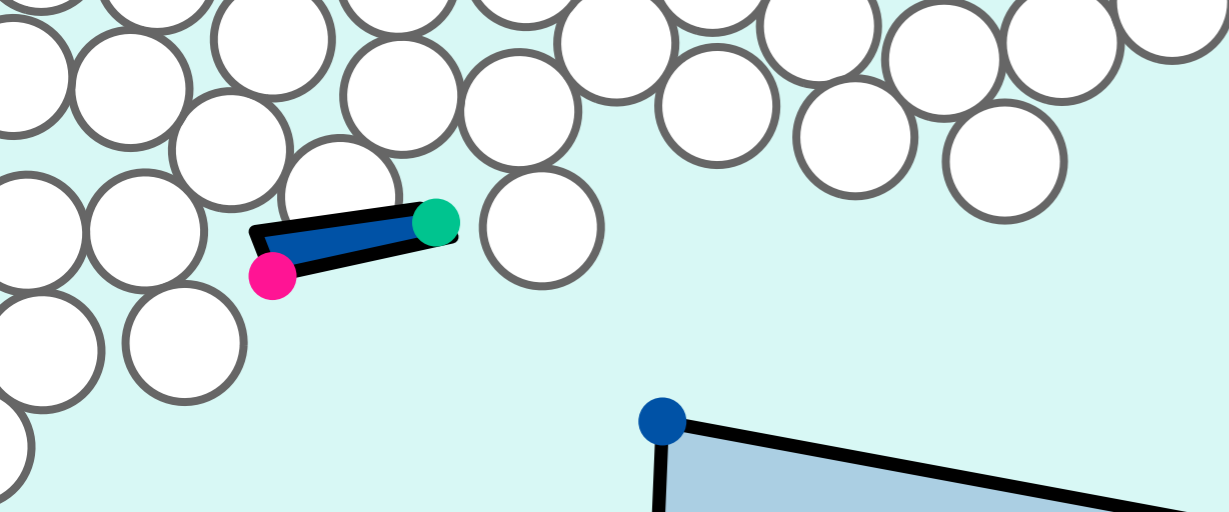


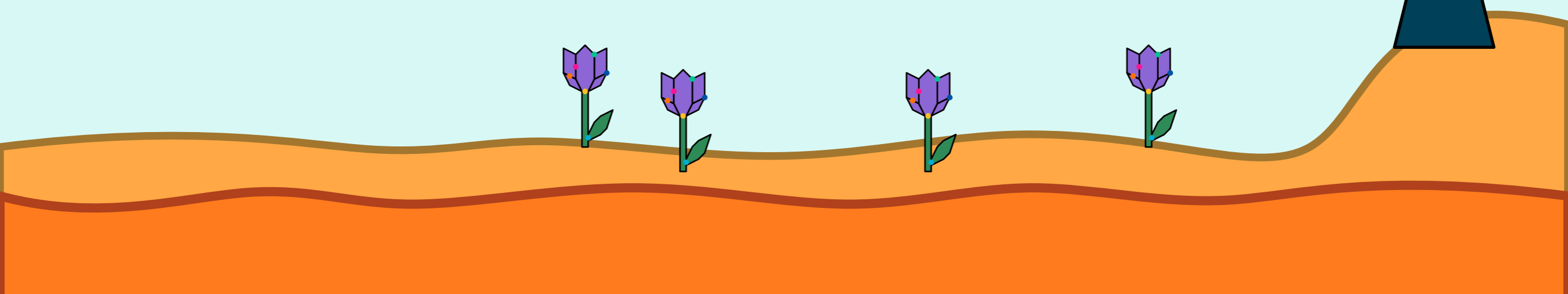
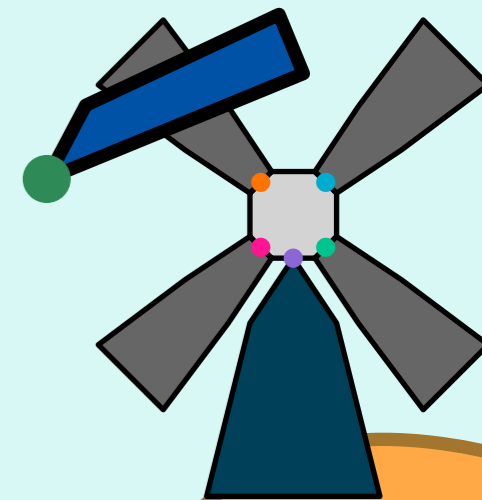
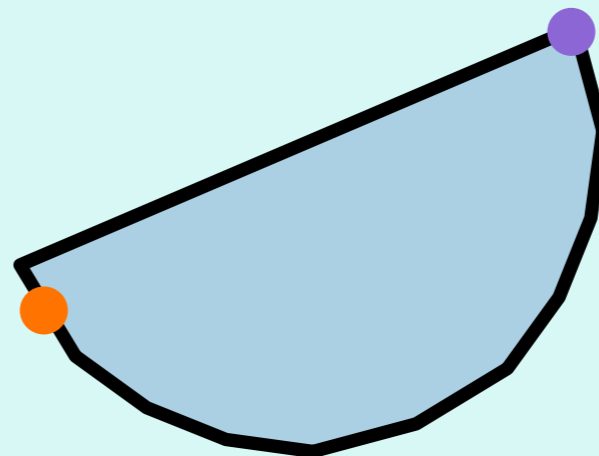
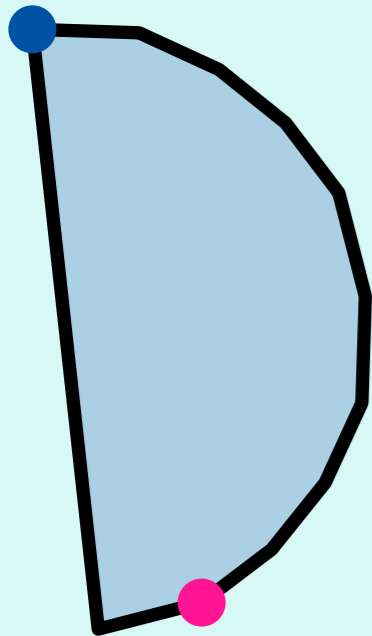
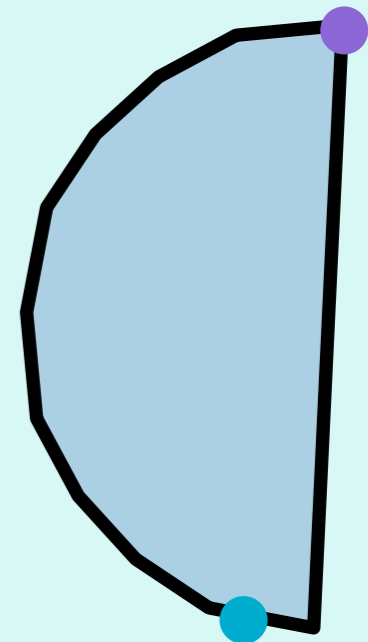
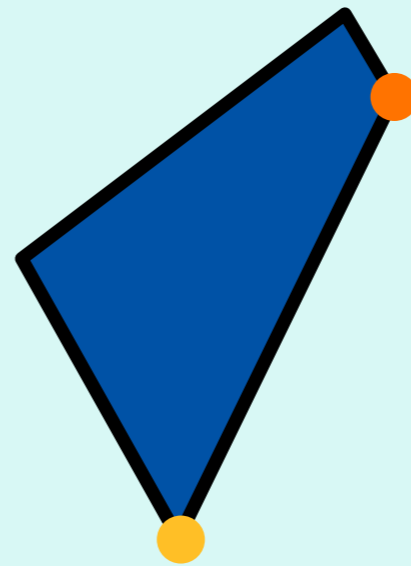
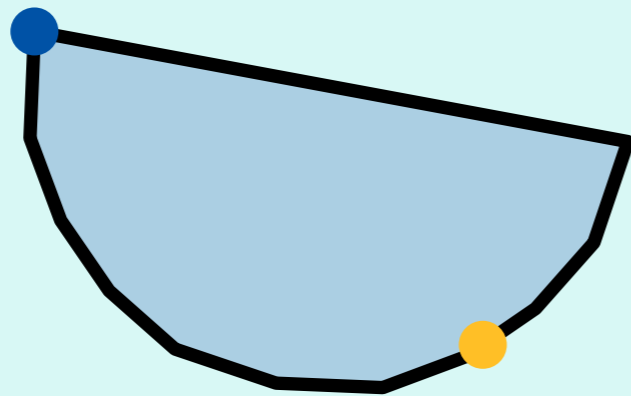
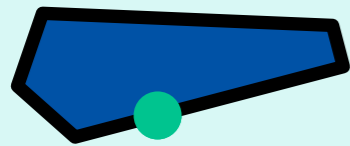
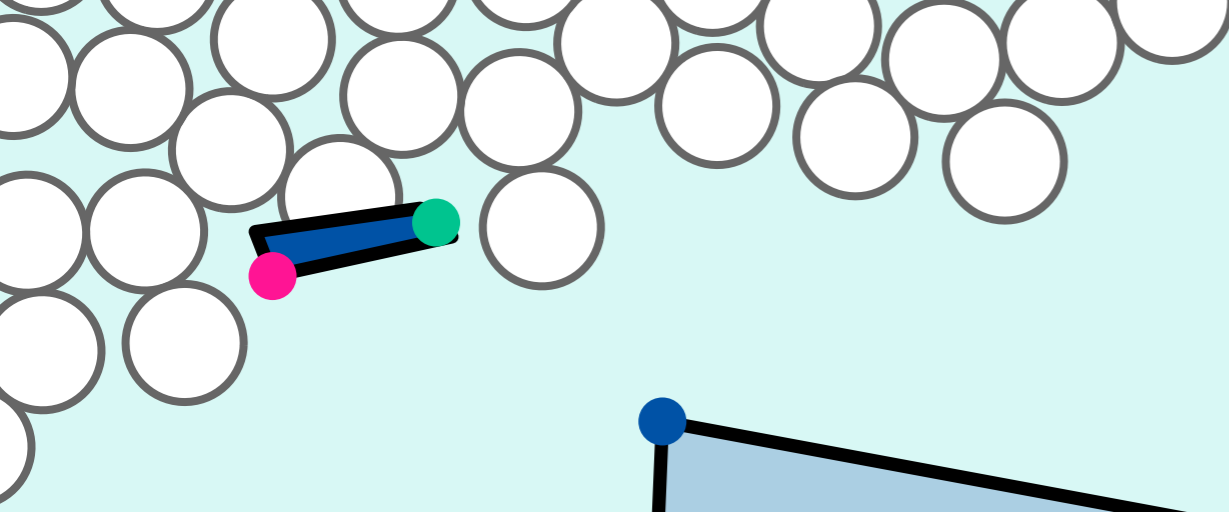
a simple algorithm

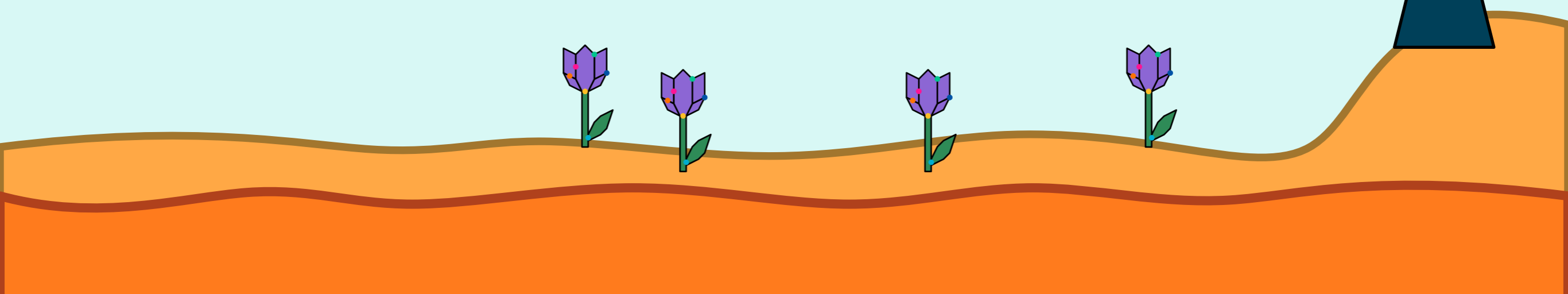
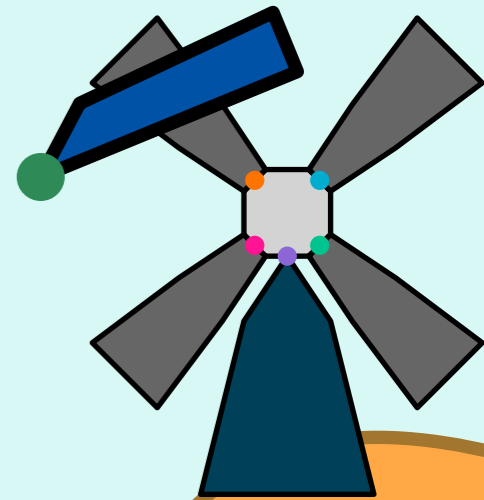
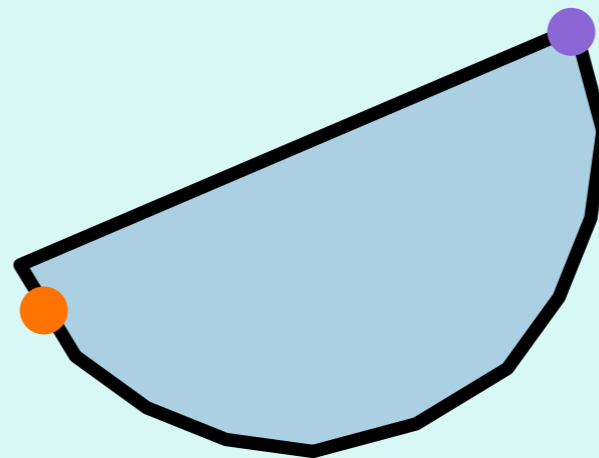
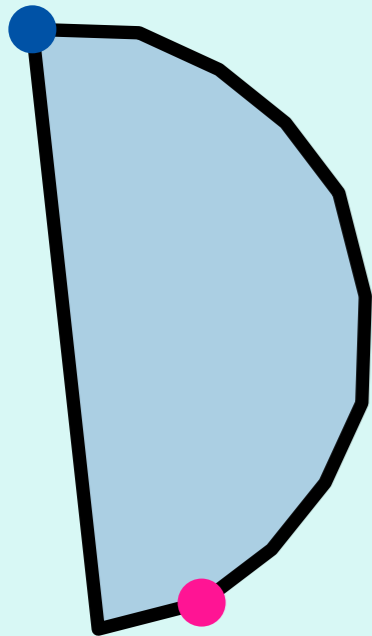
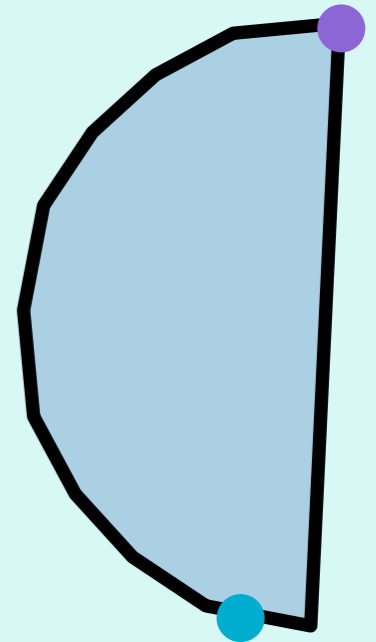
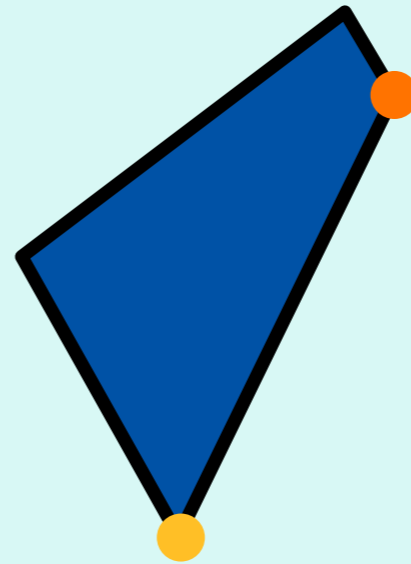
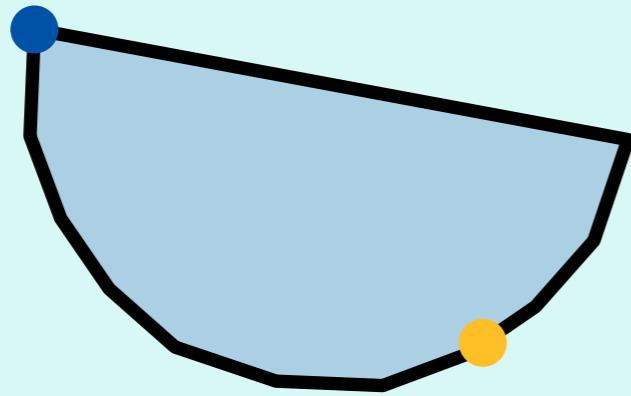
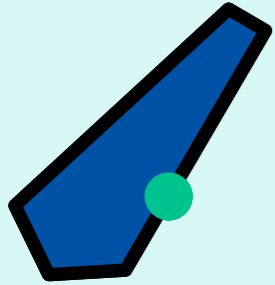
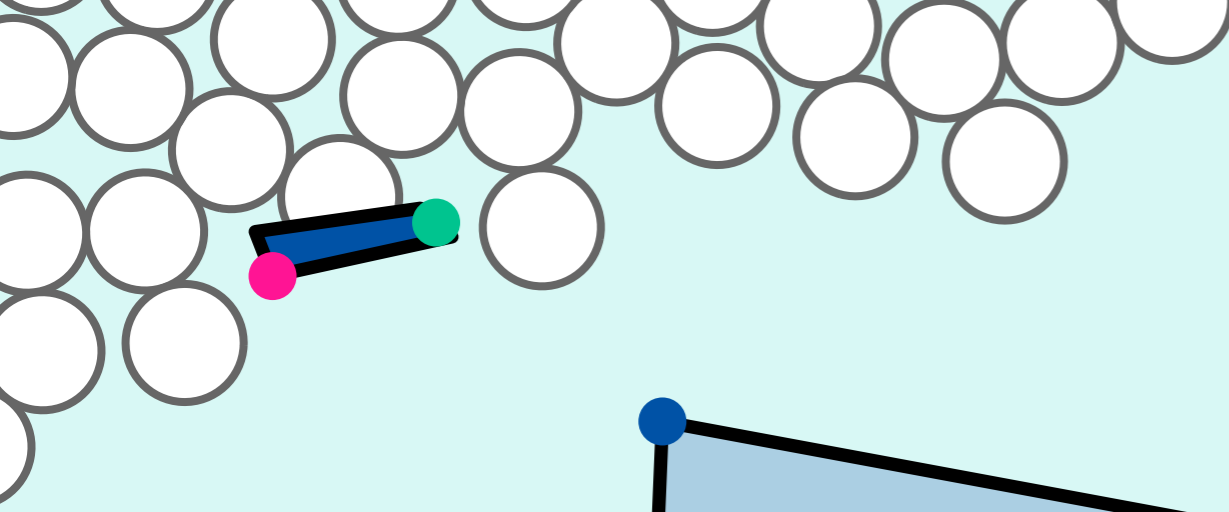


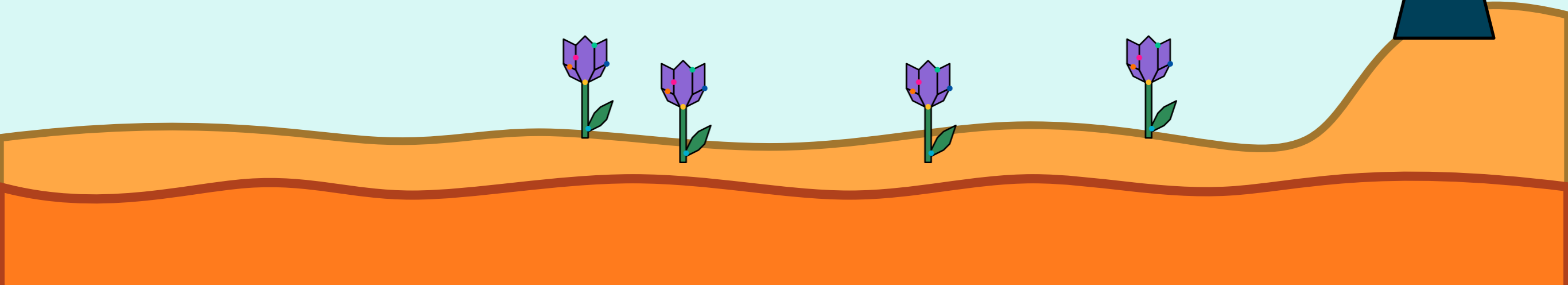
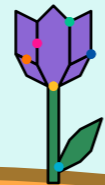
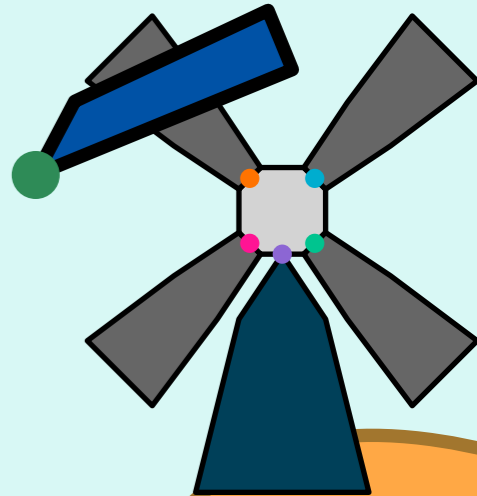
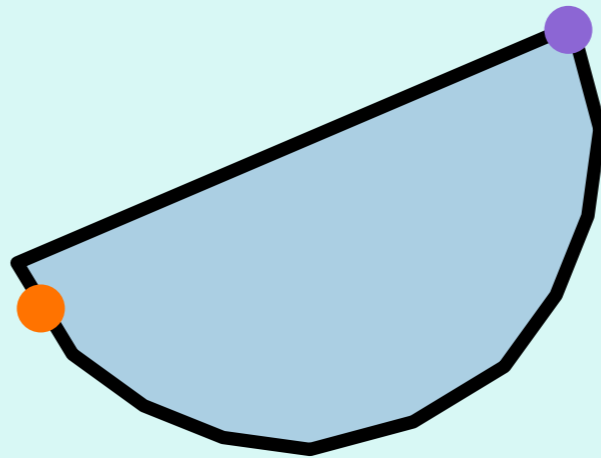
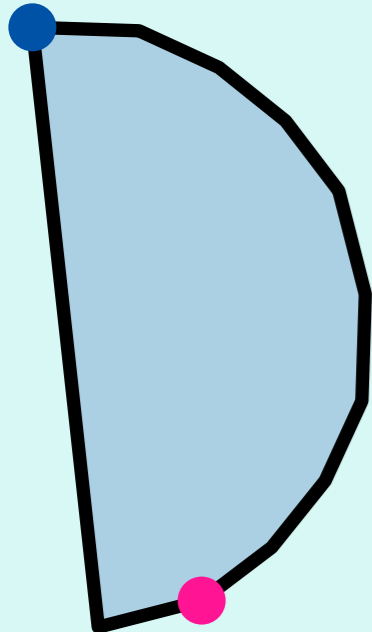
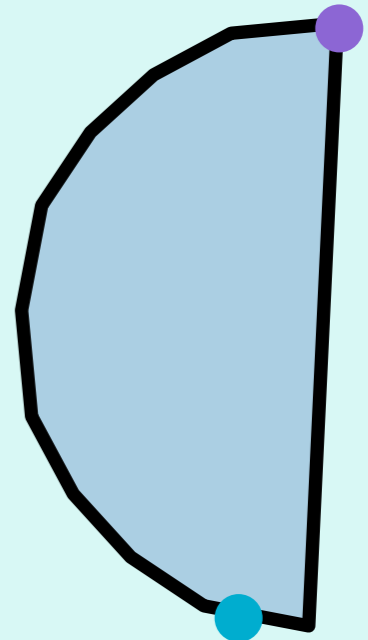
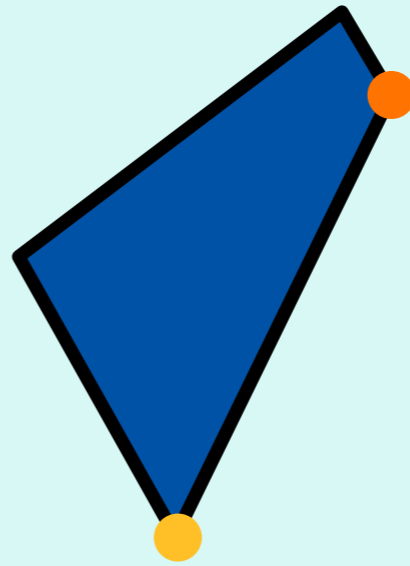
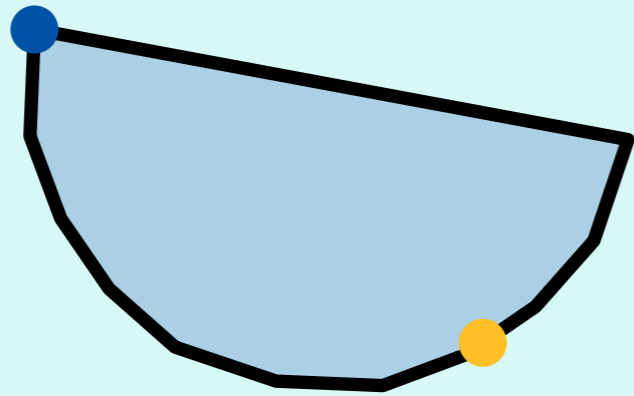
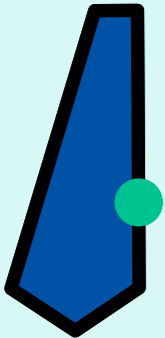
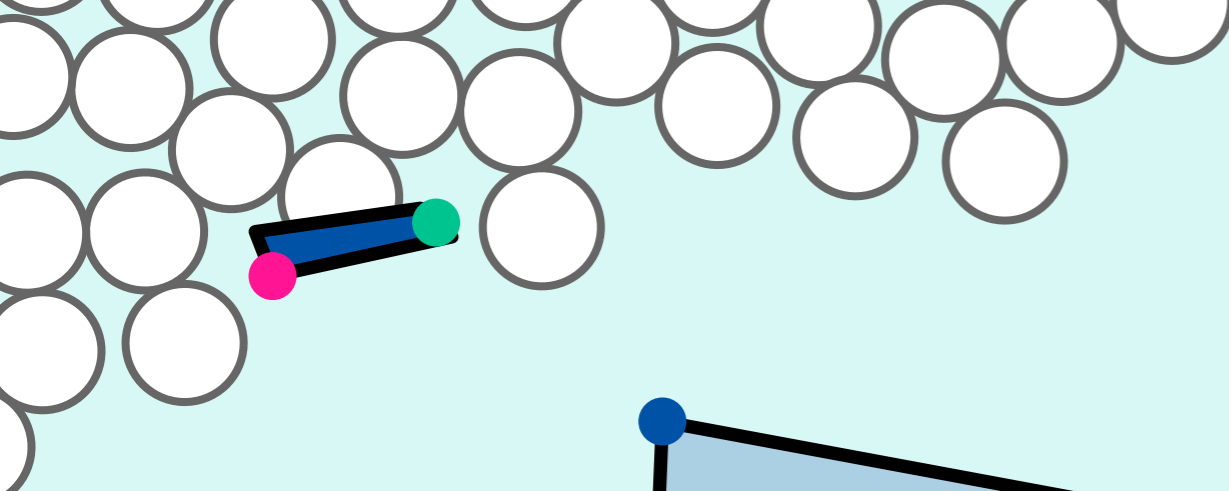


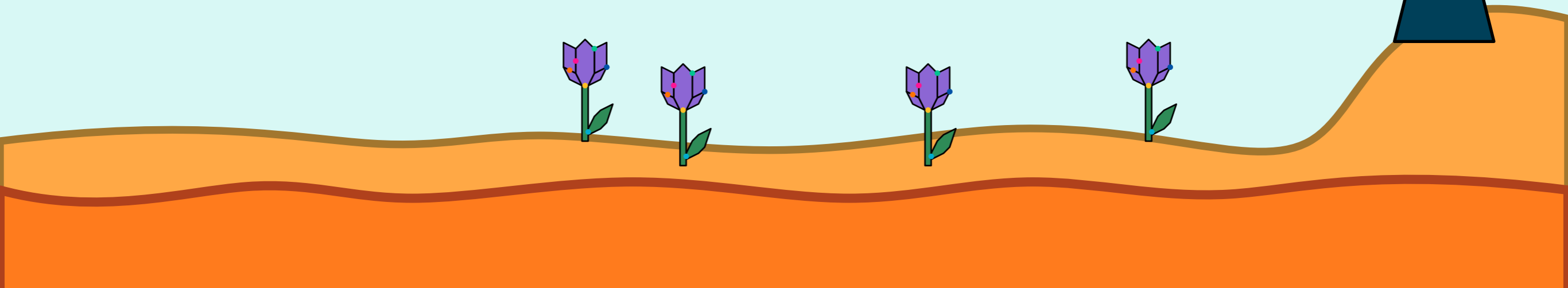
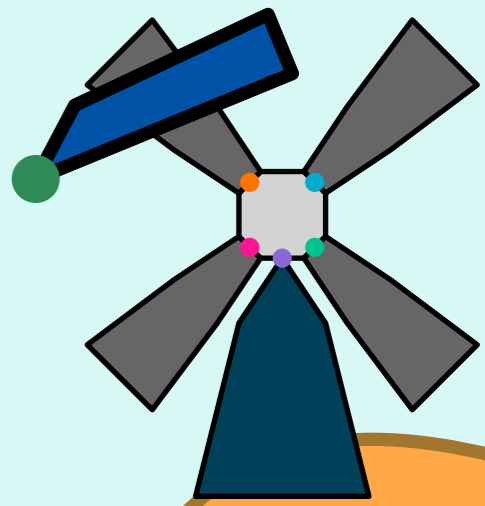
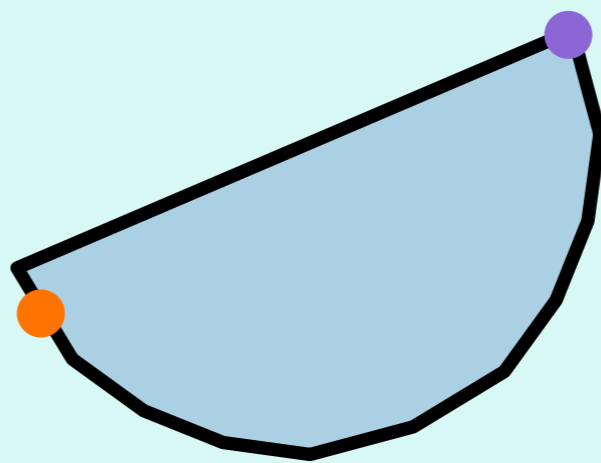
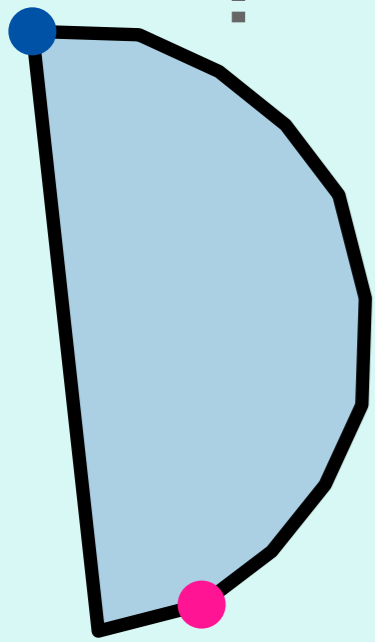
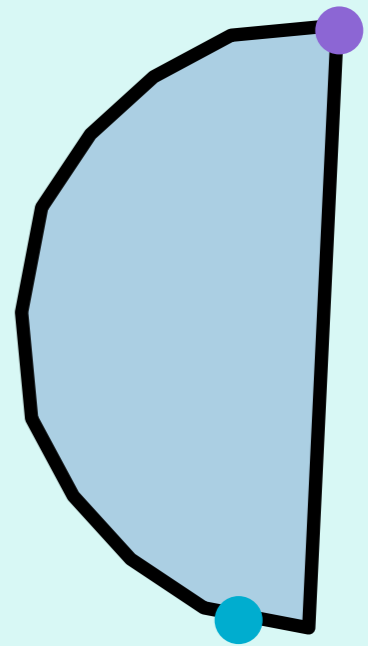
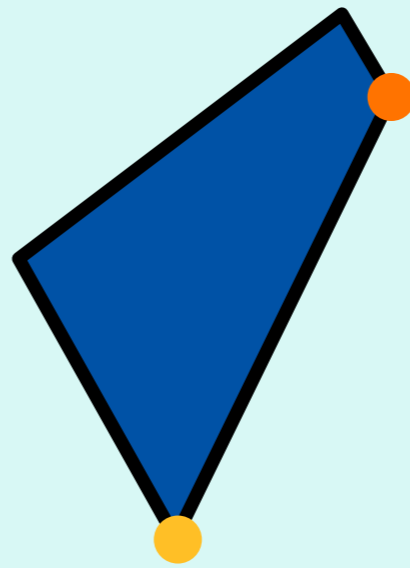
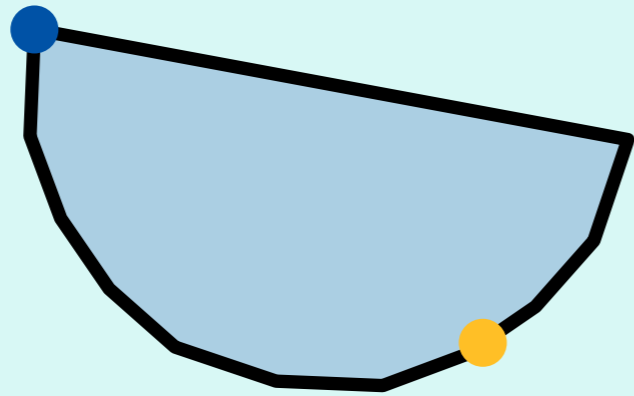
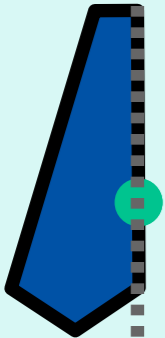
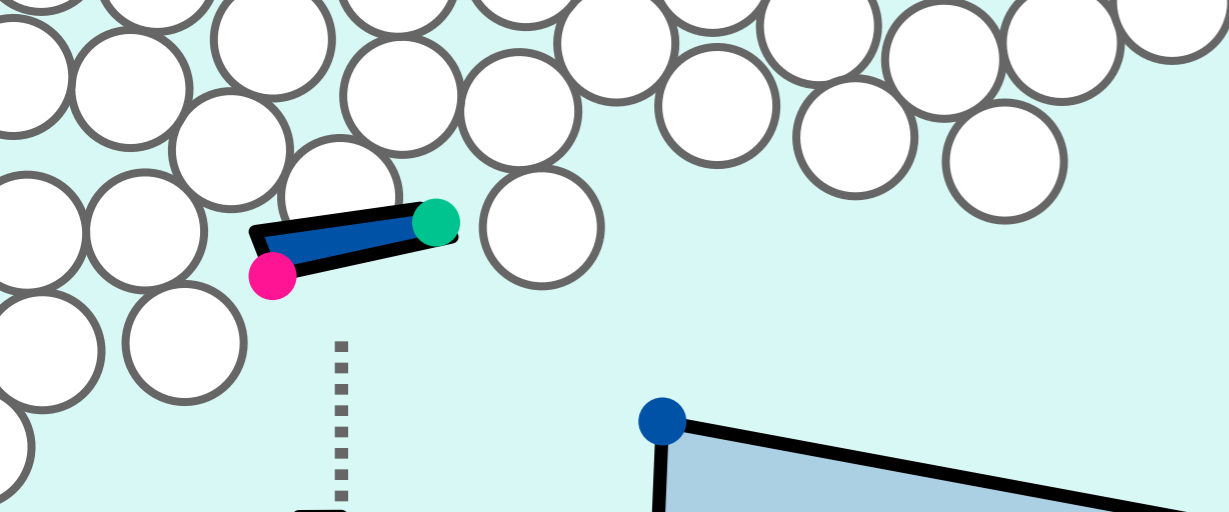


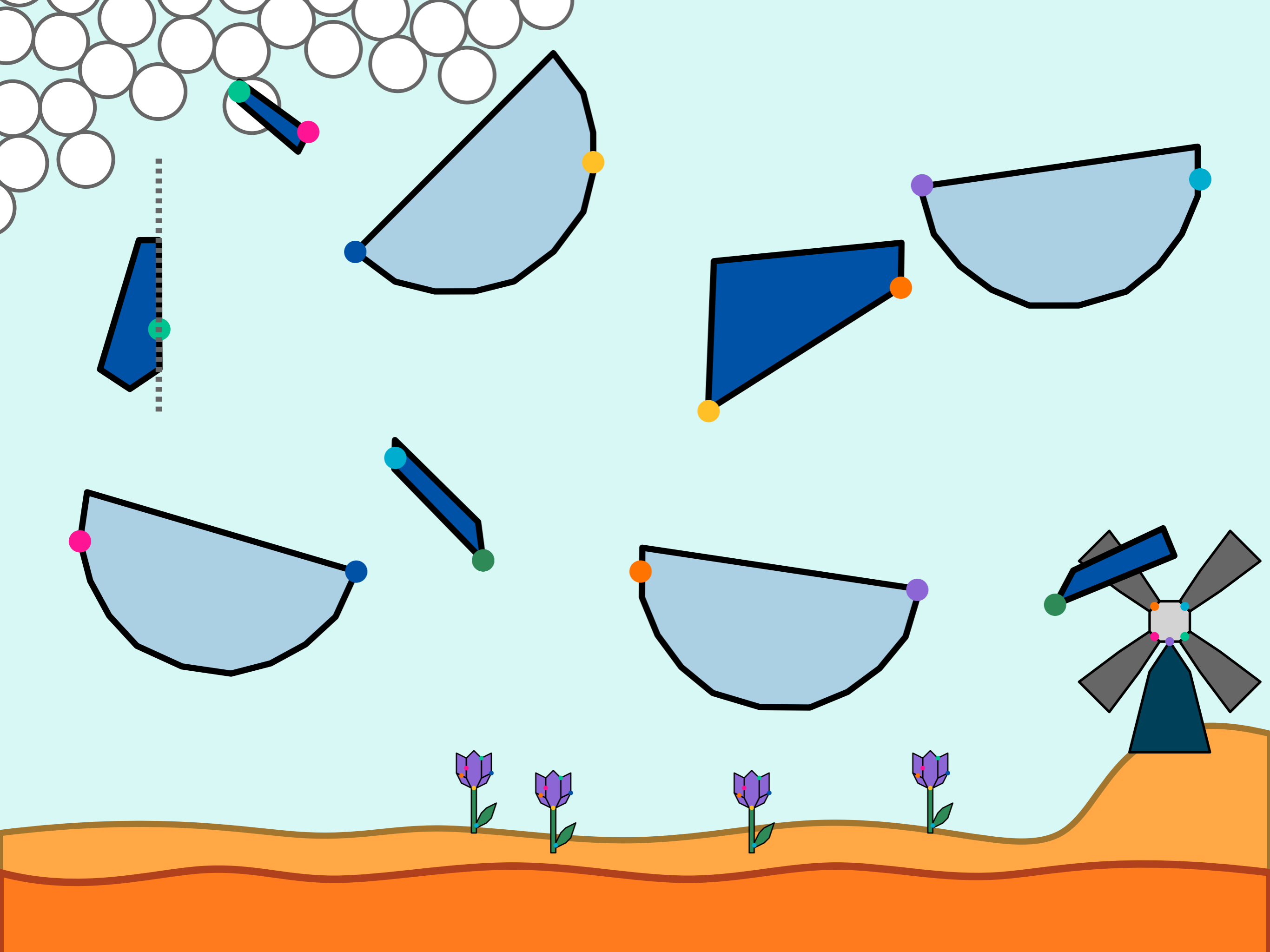


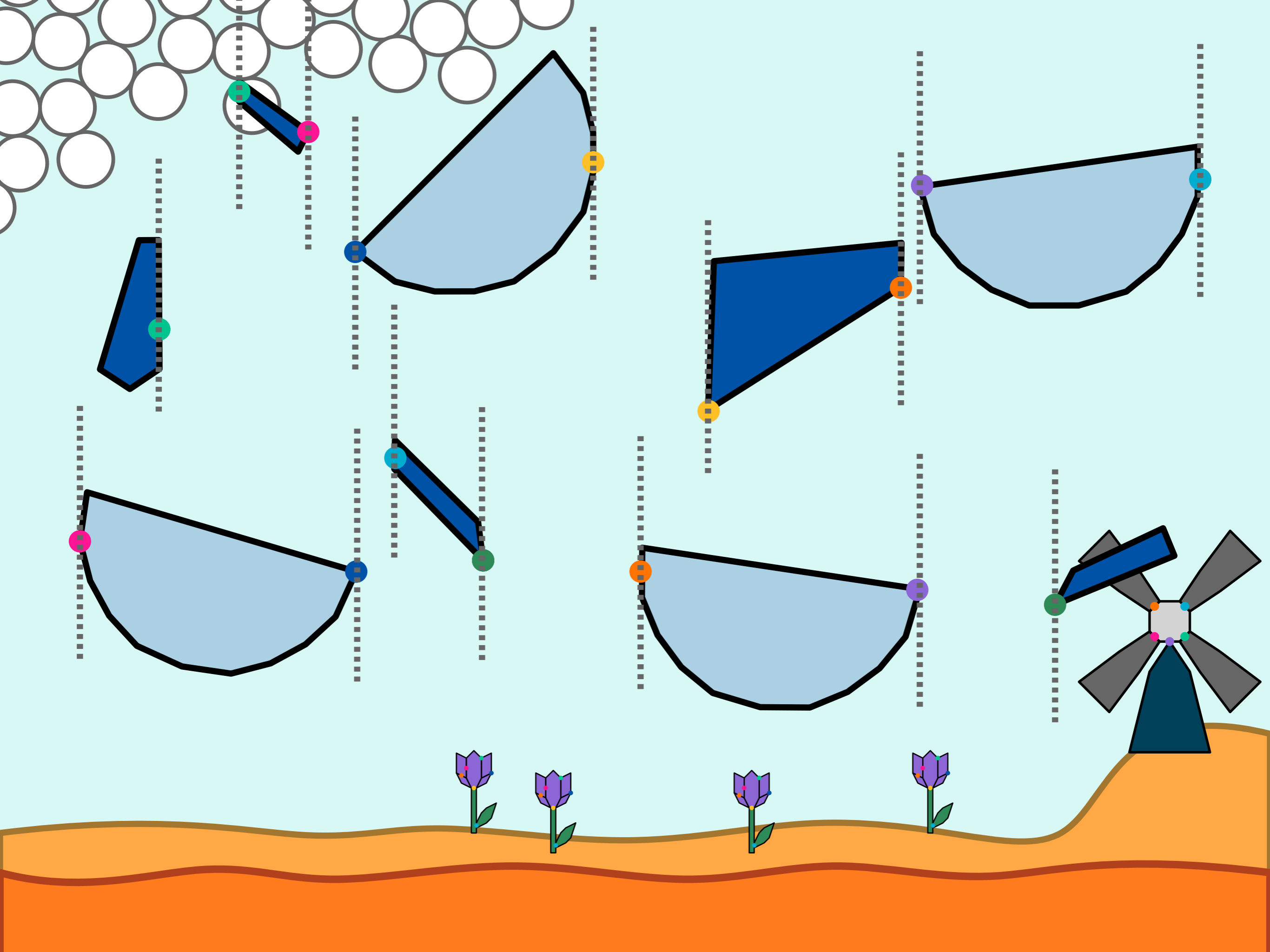


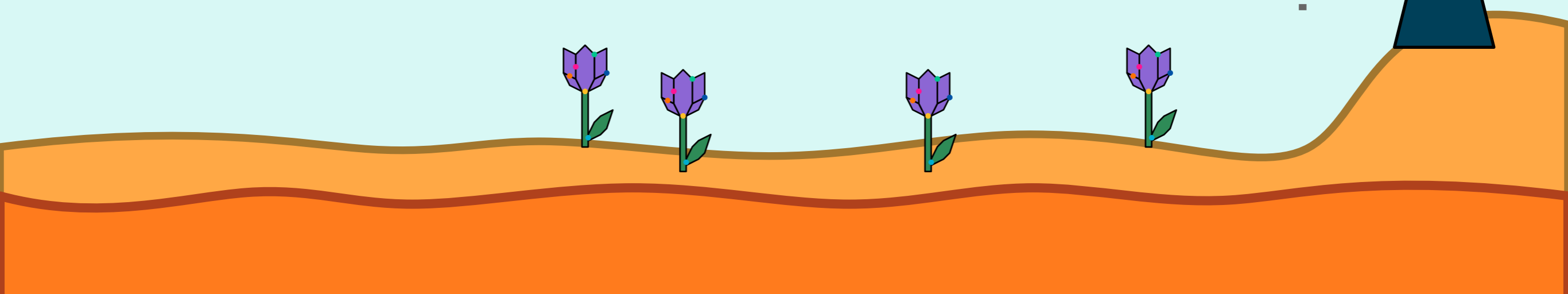
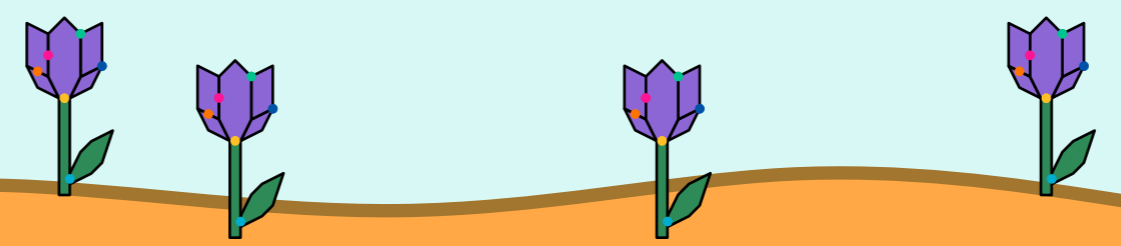
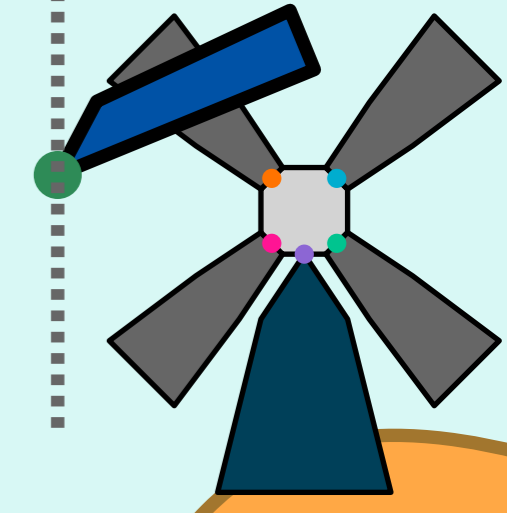
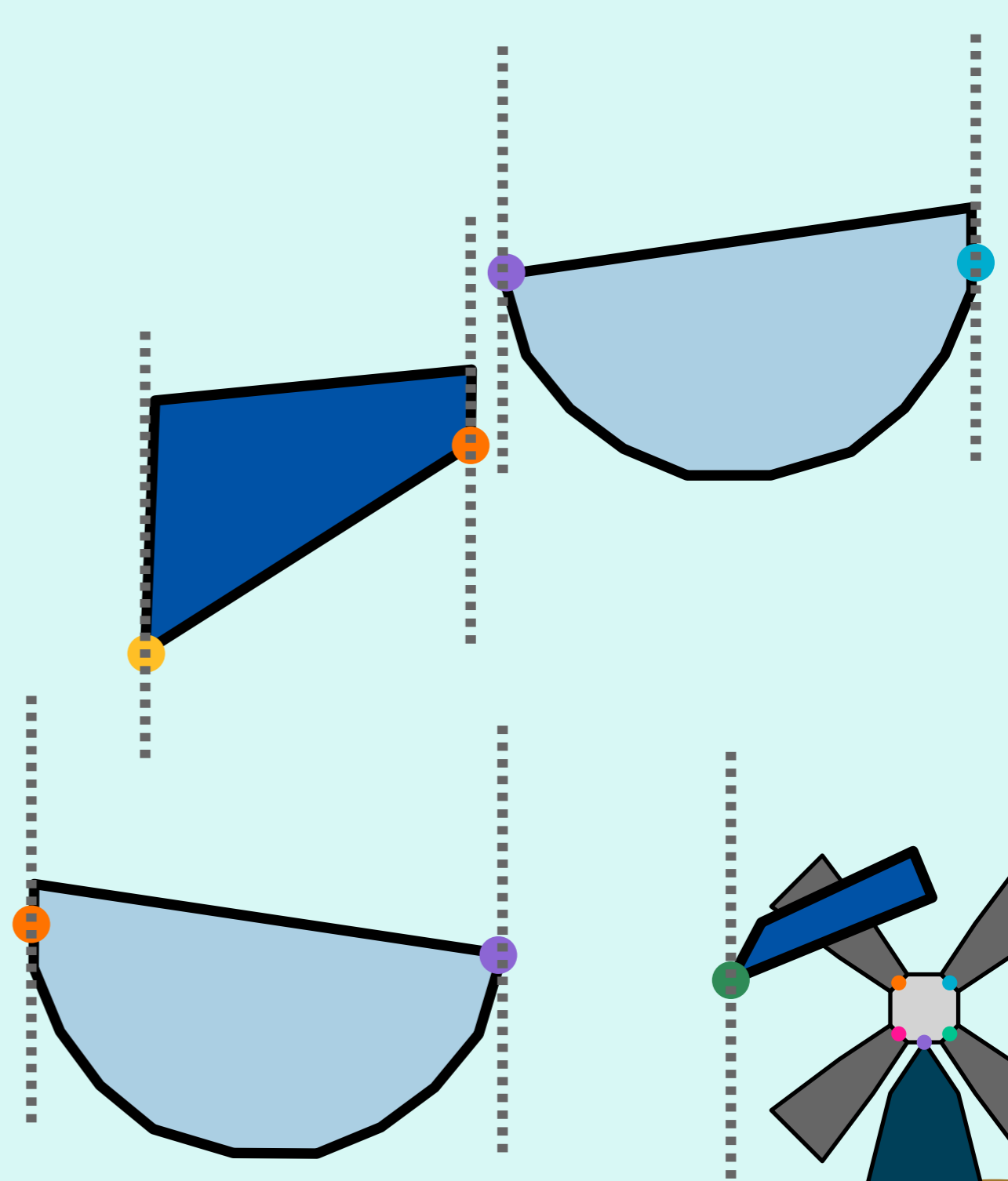
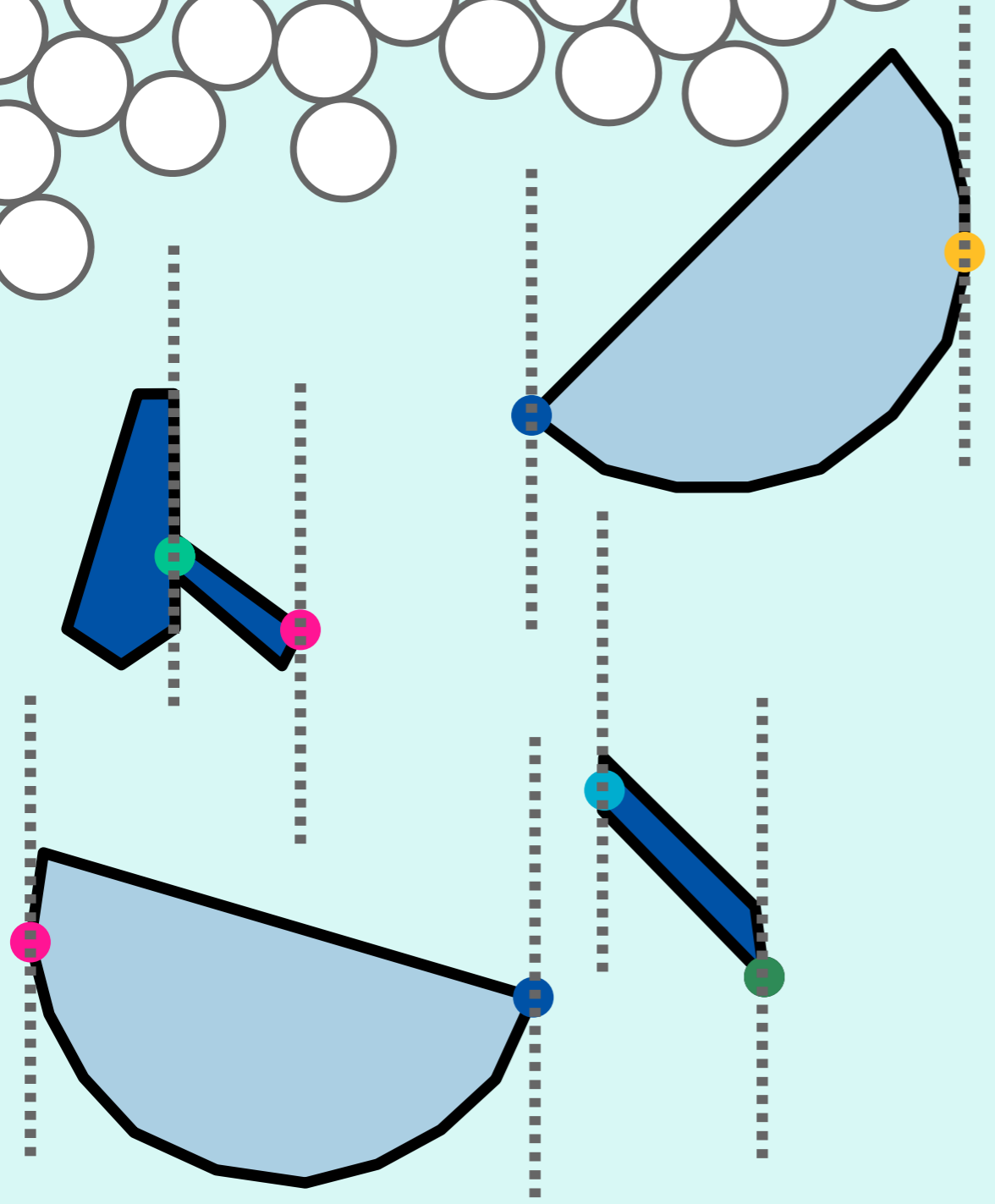
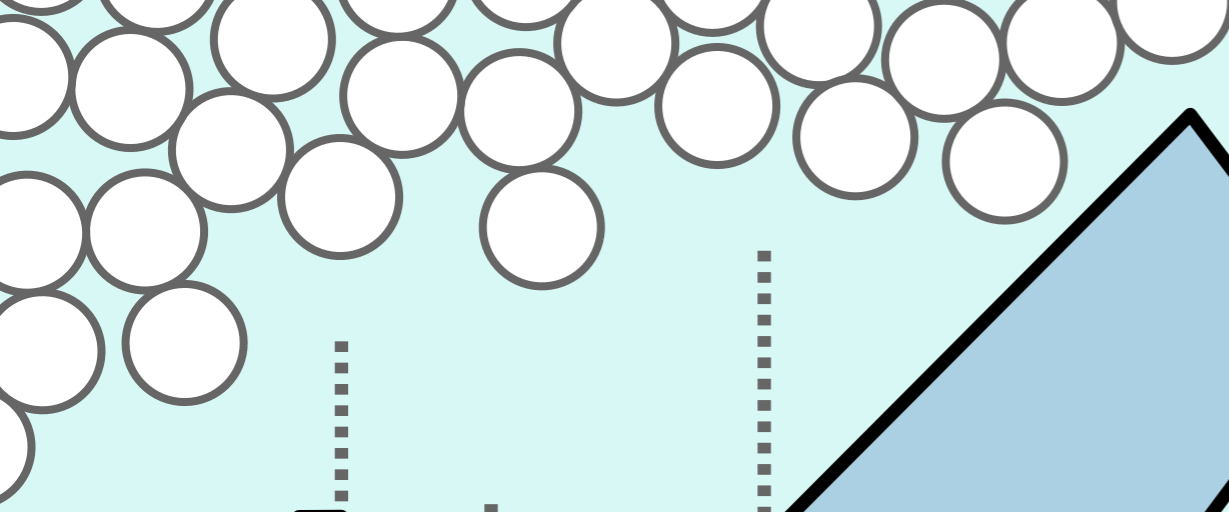


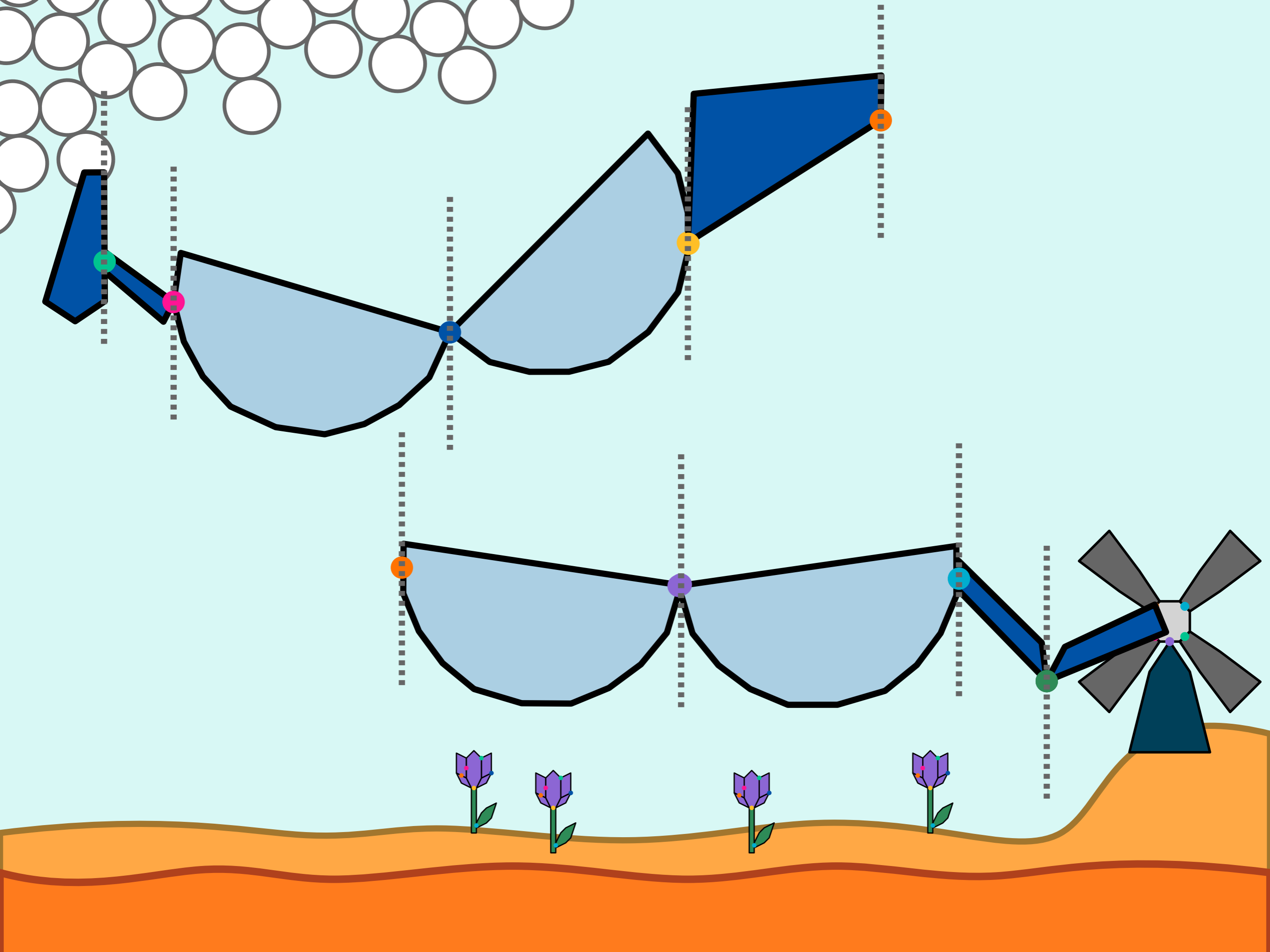


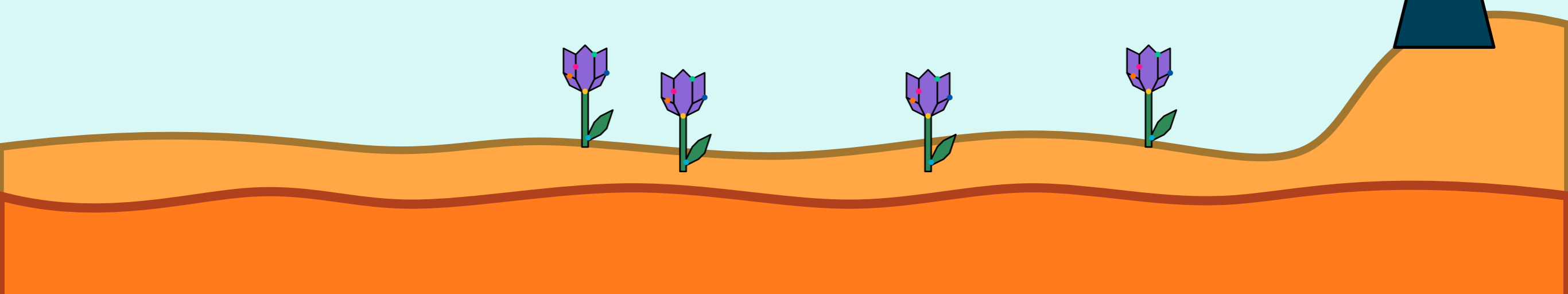
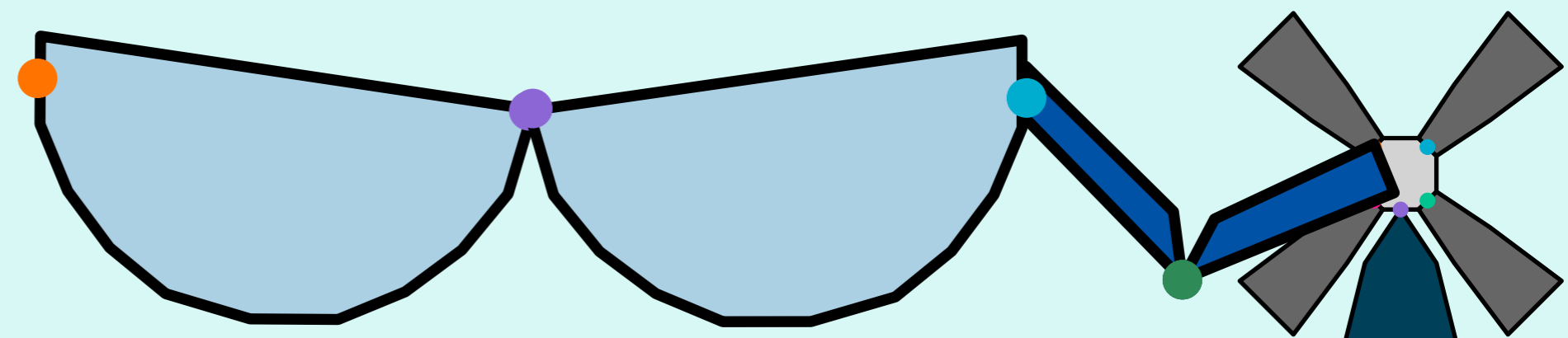
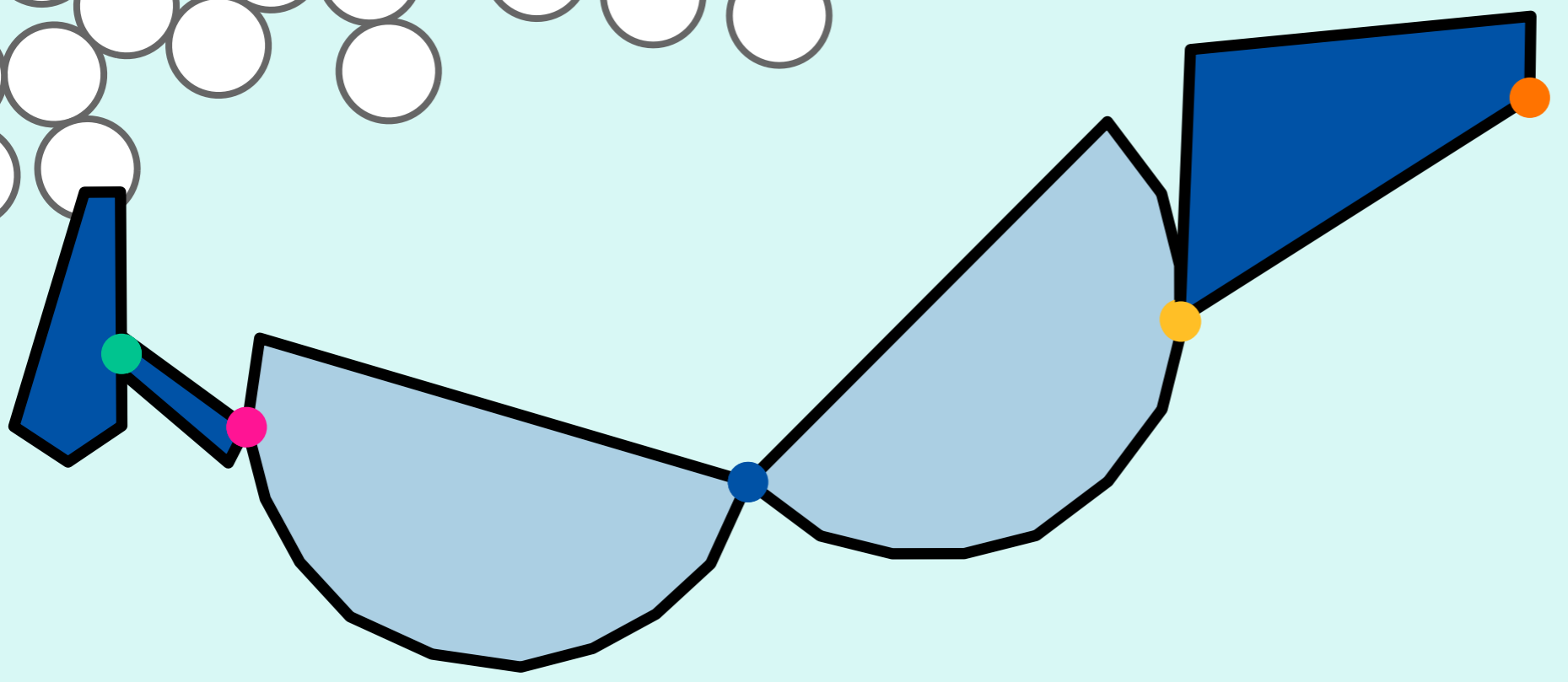
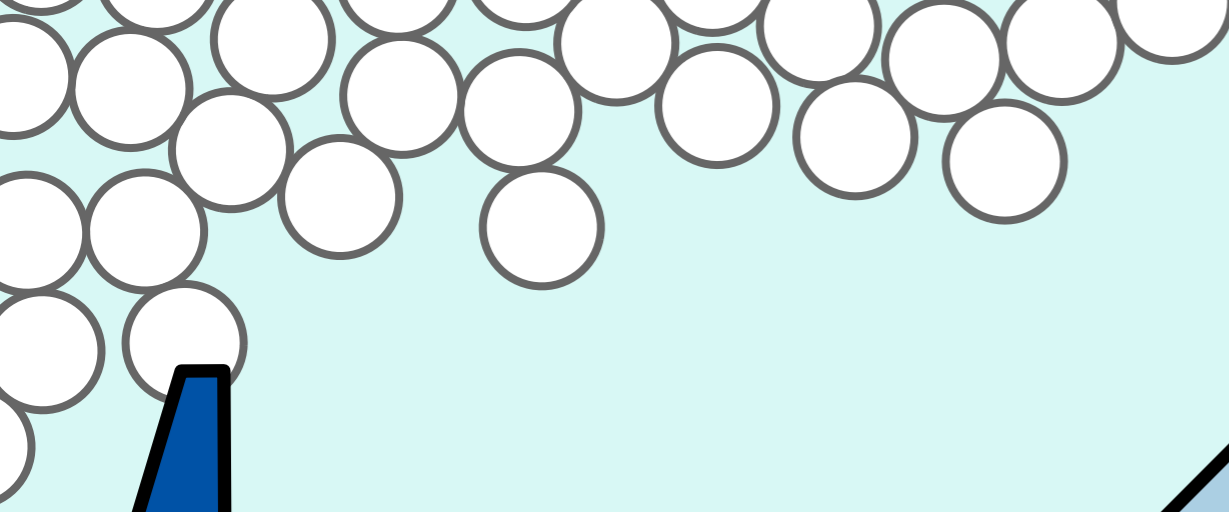


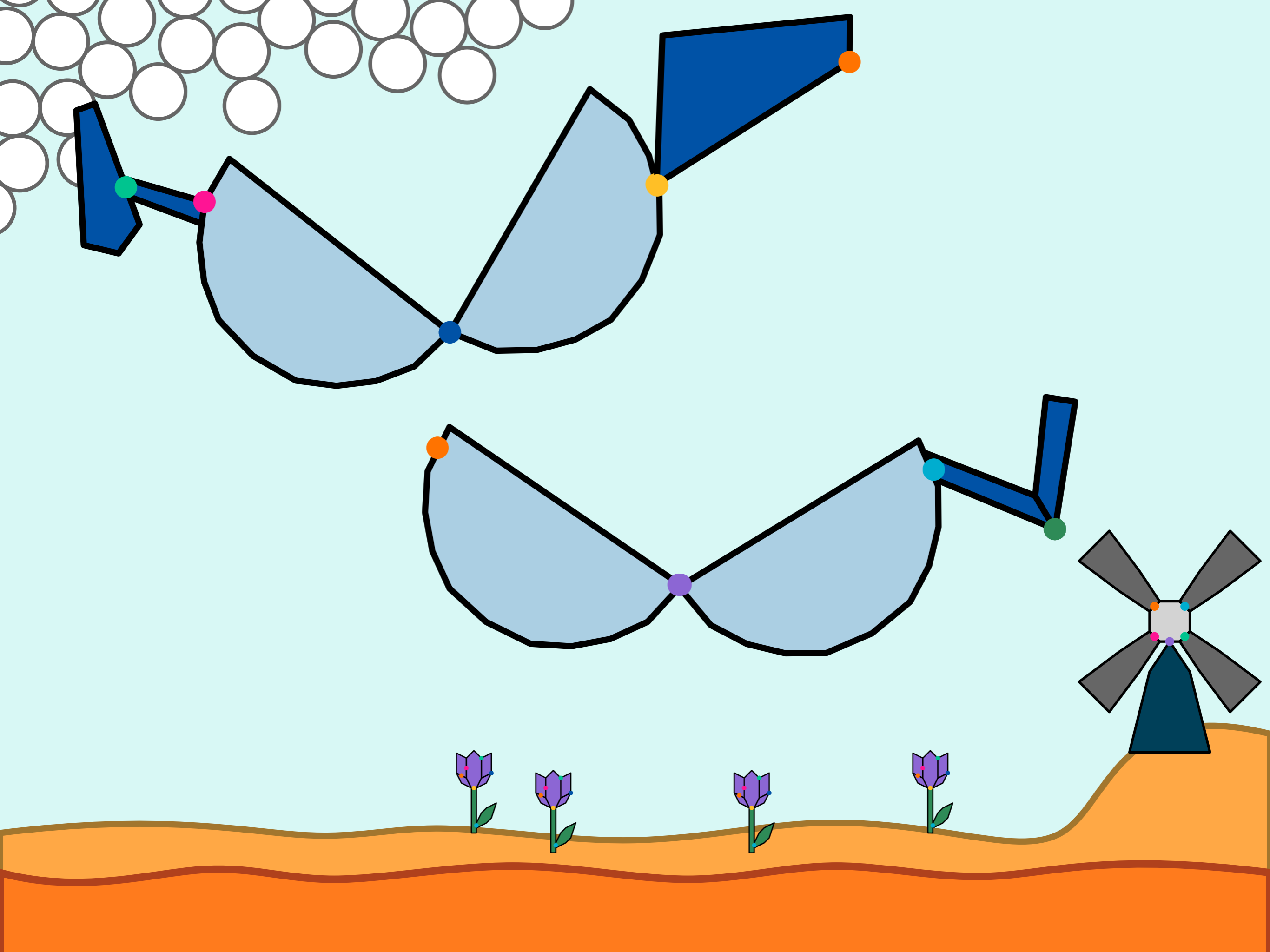


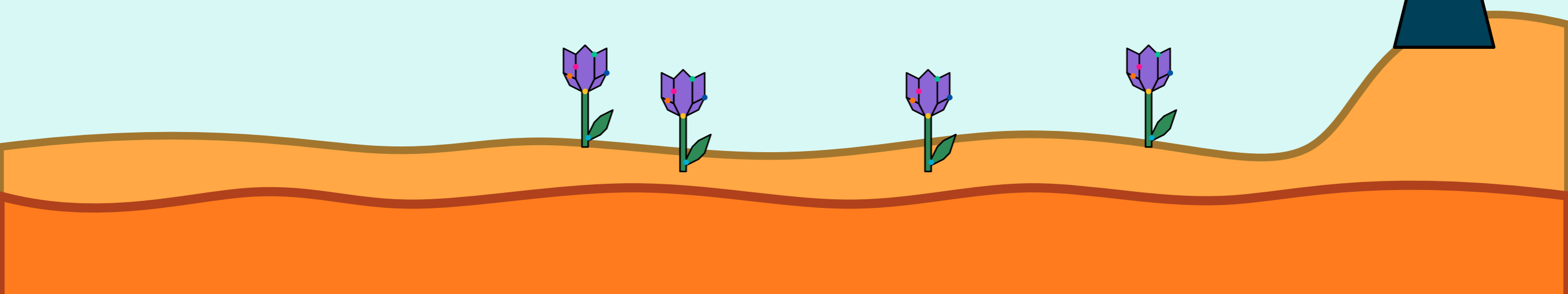
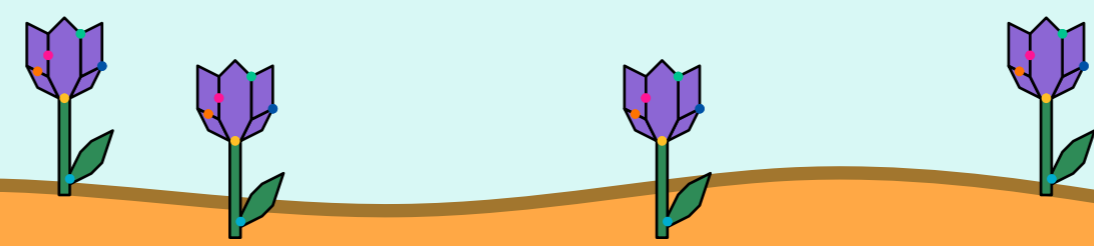
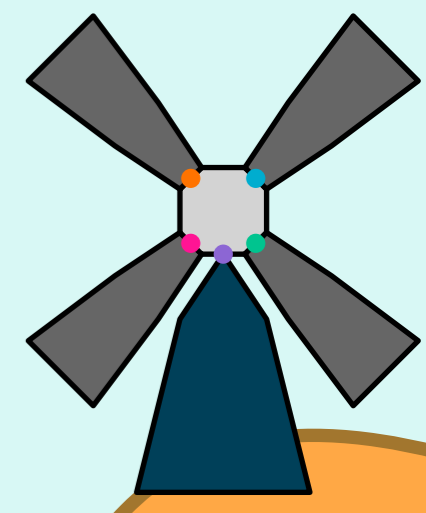
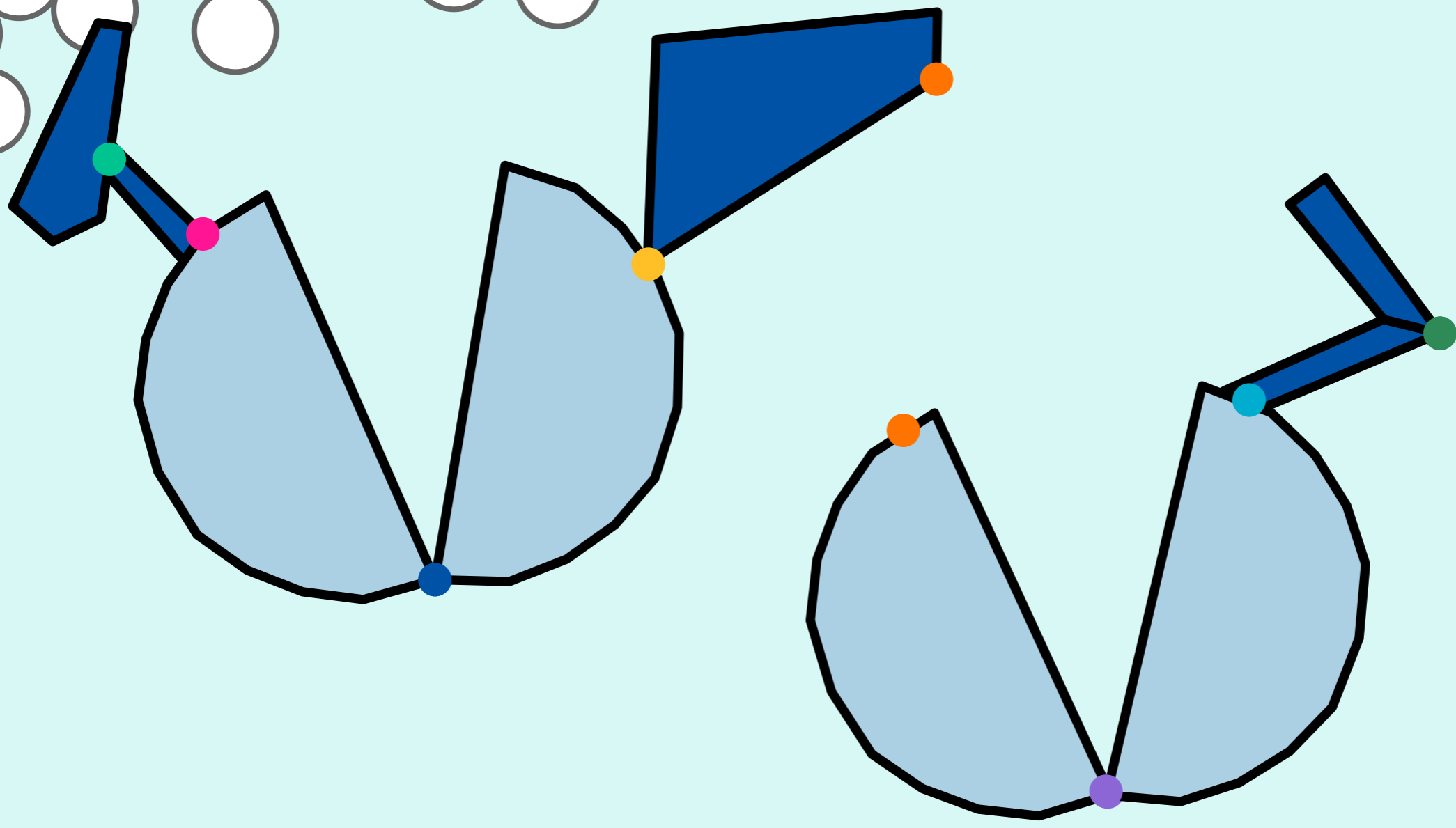
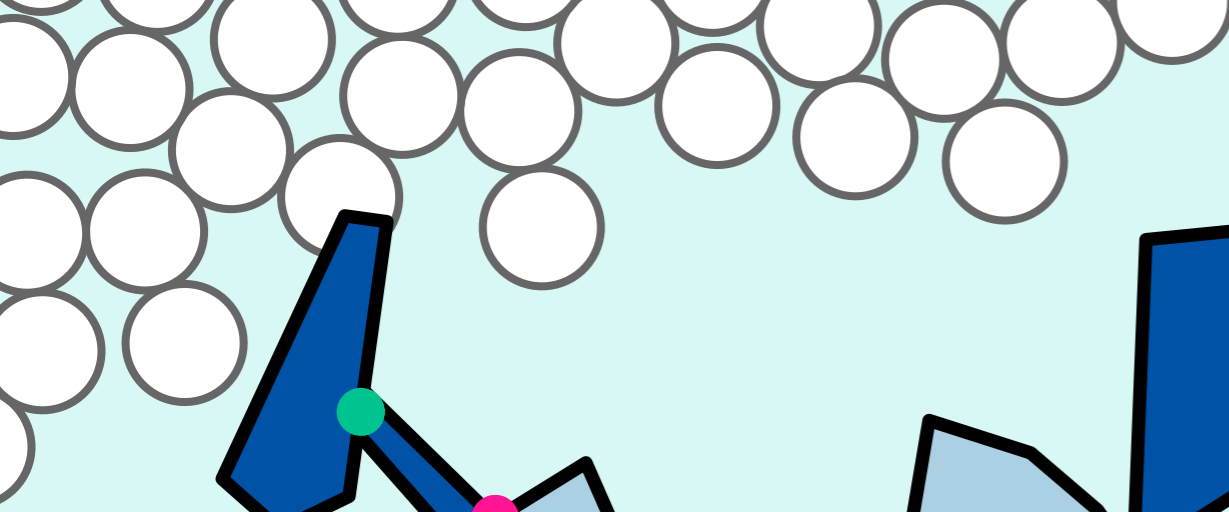


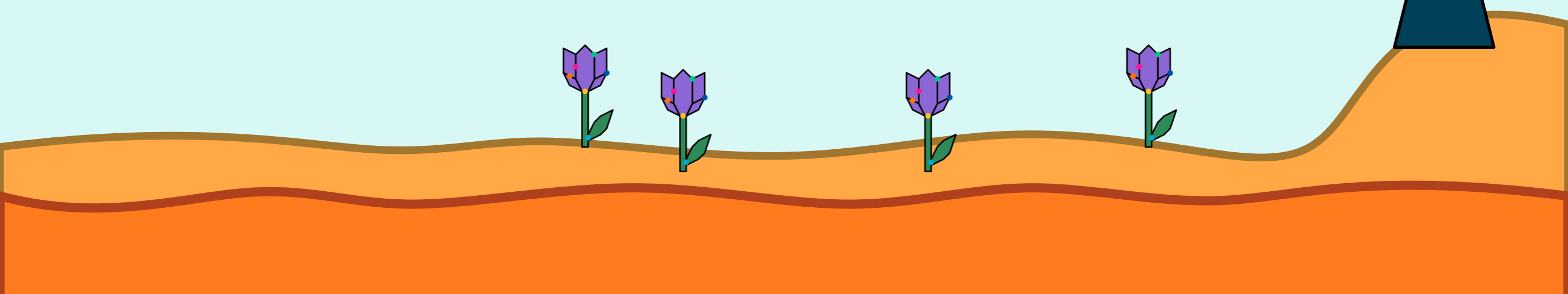
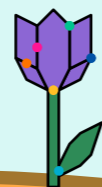
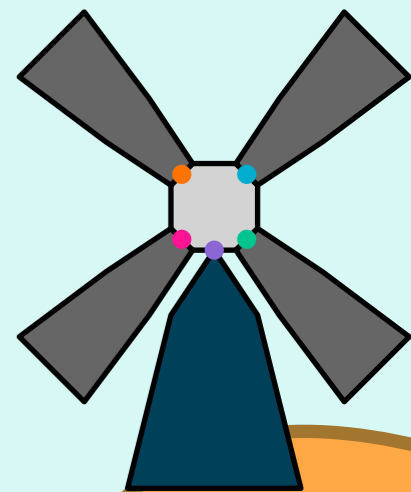
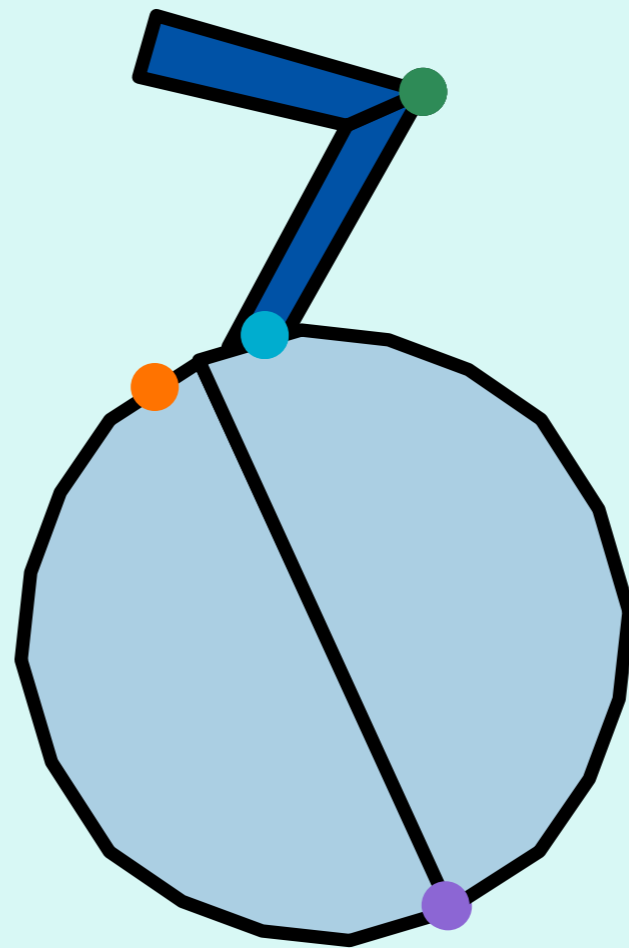
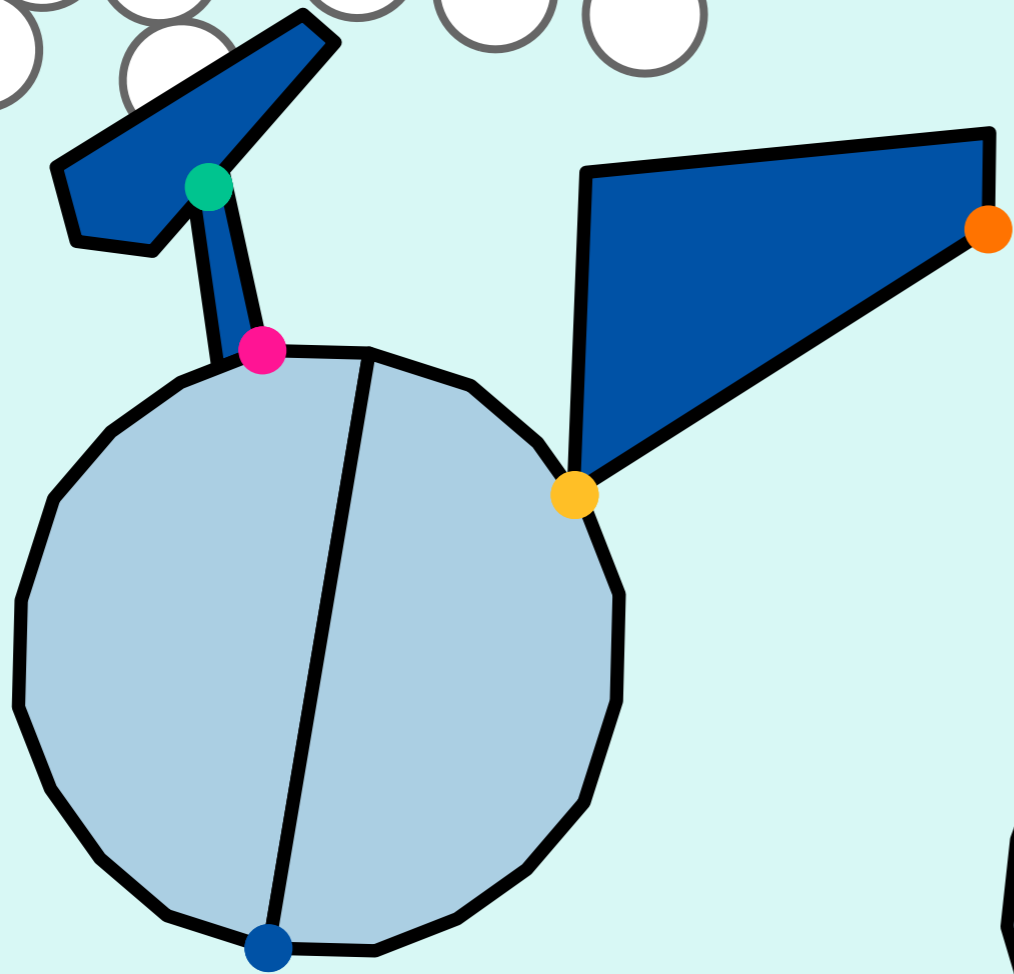
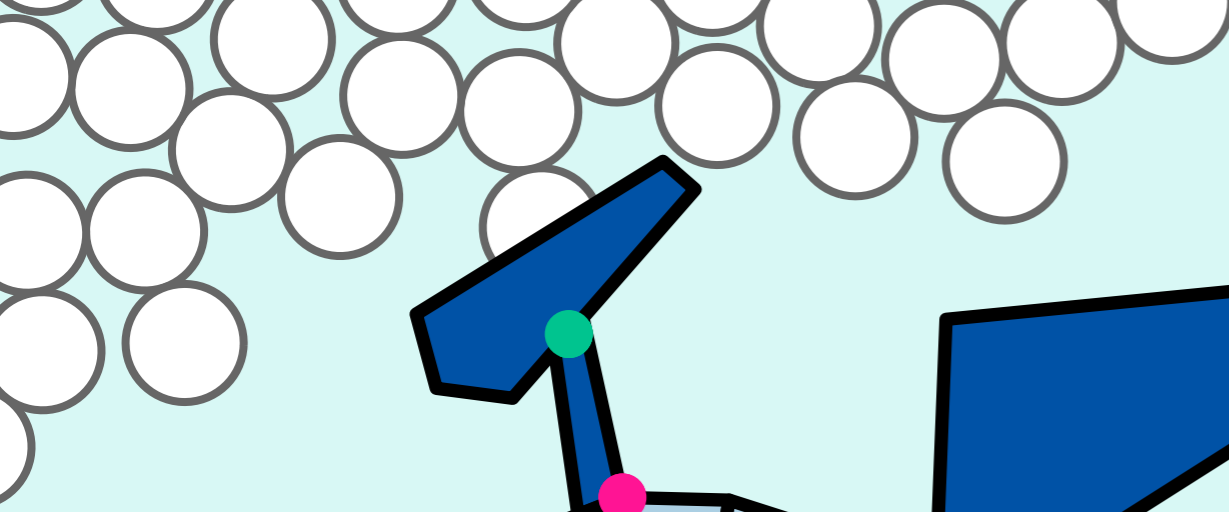


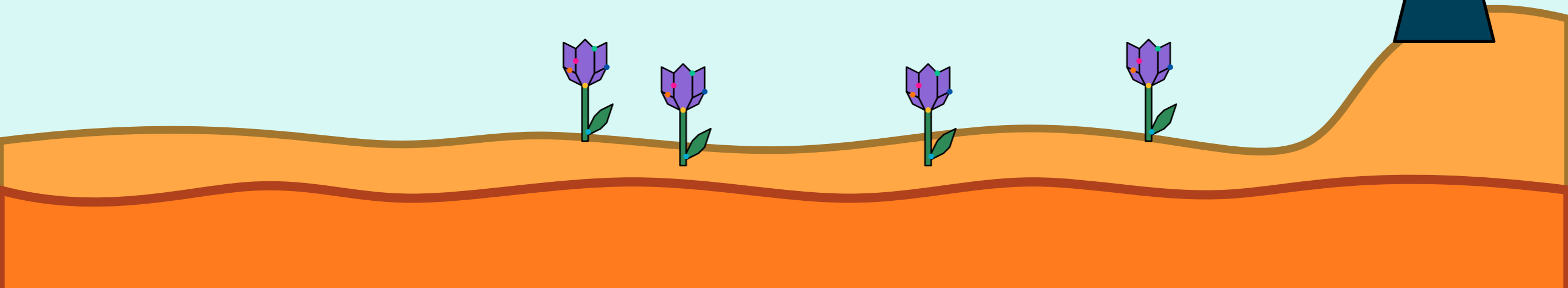
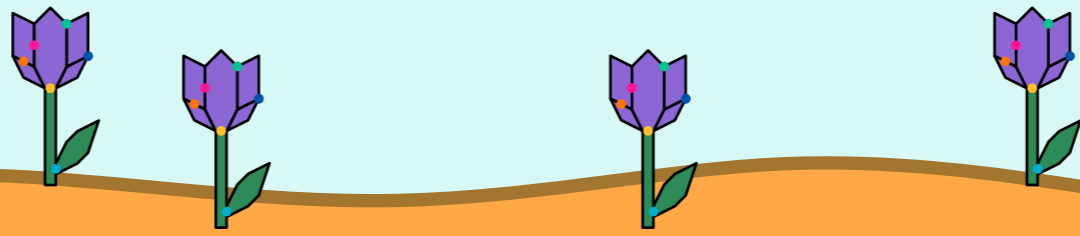
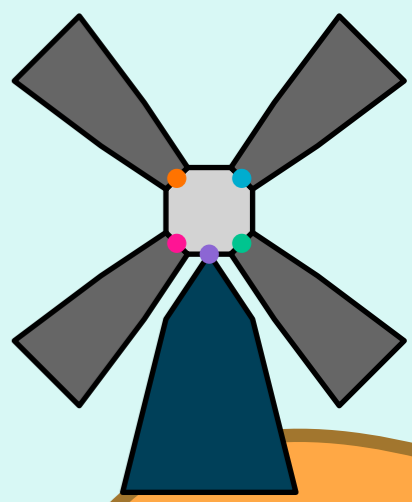
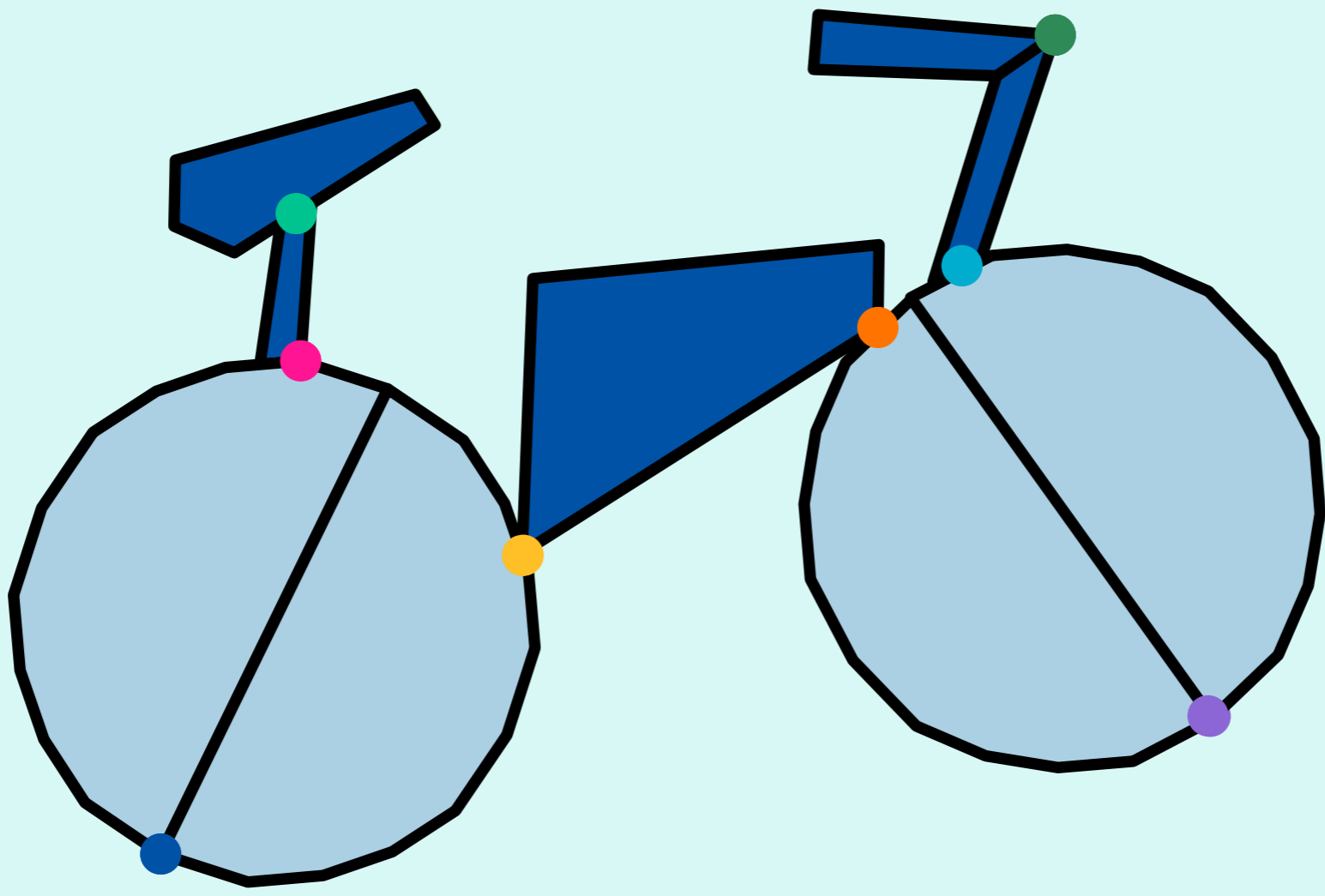
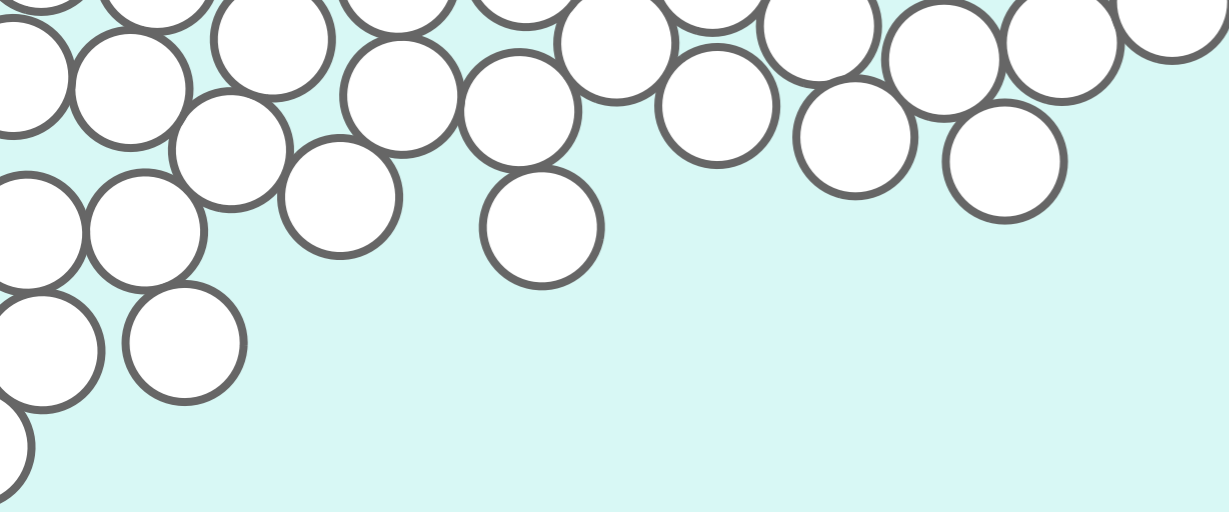


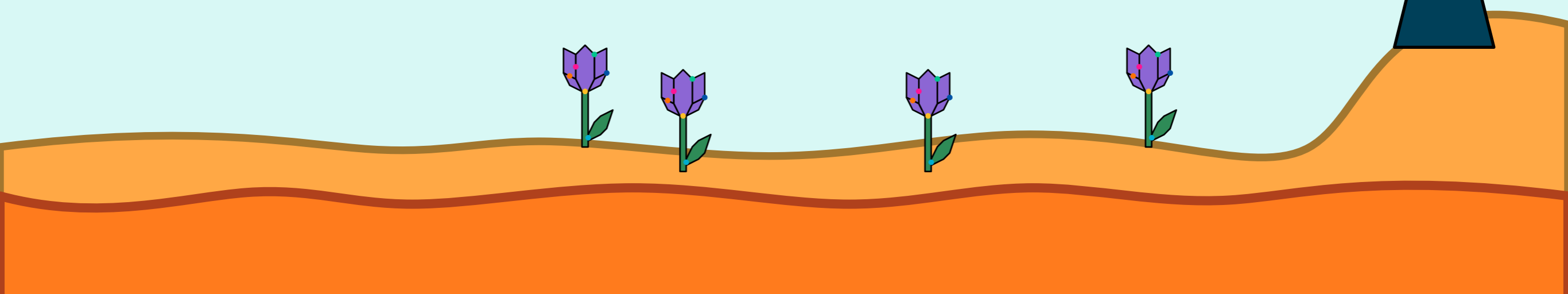
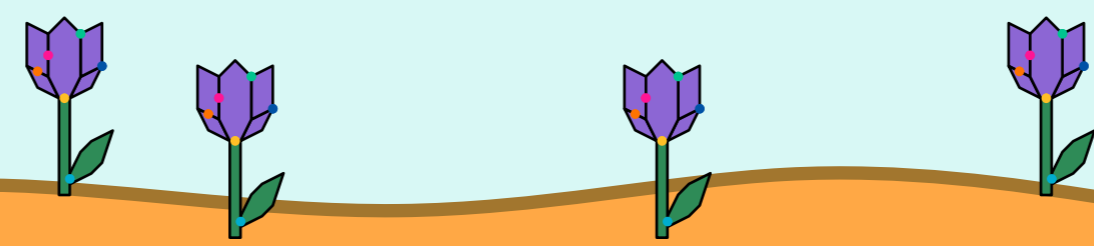
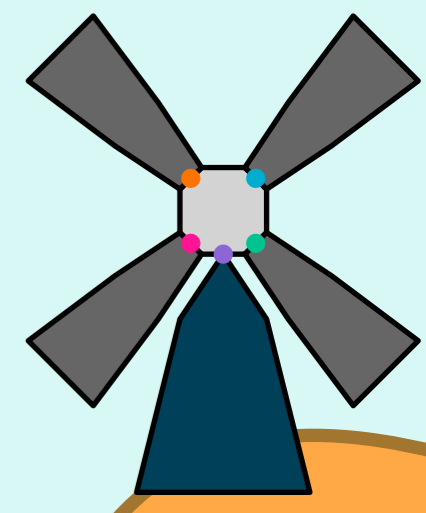
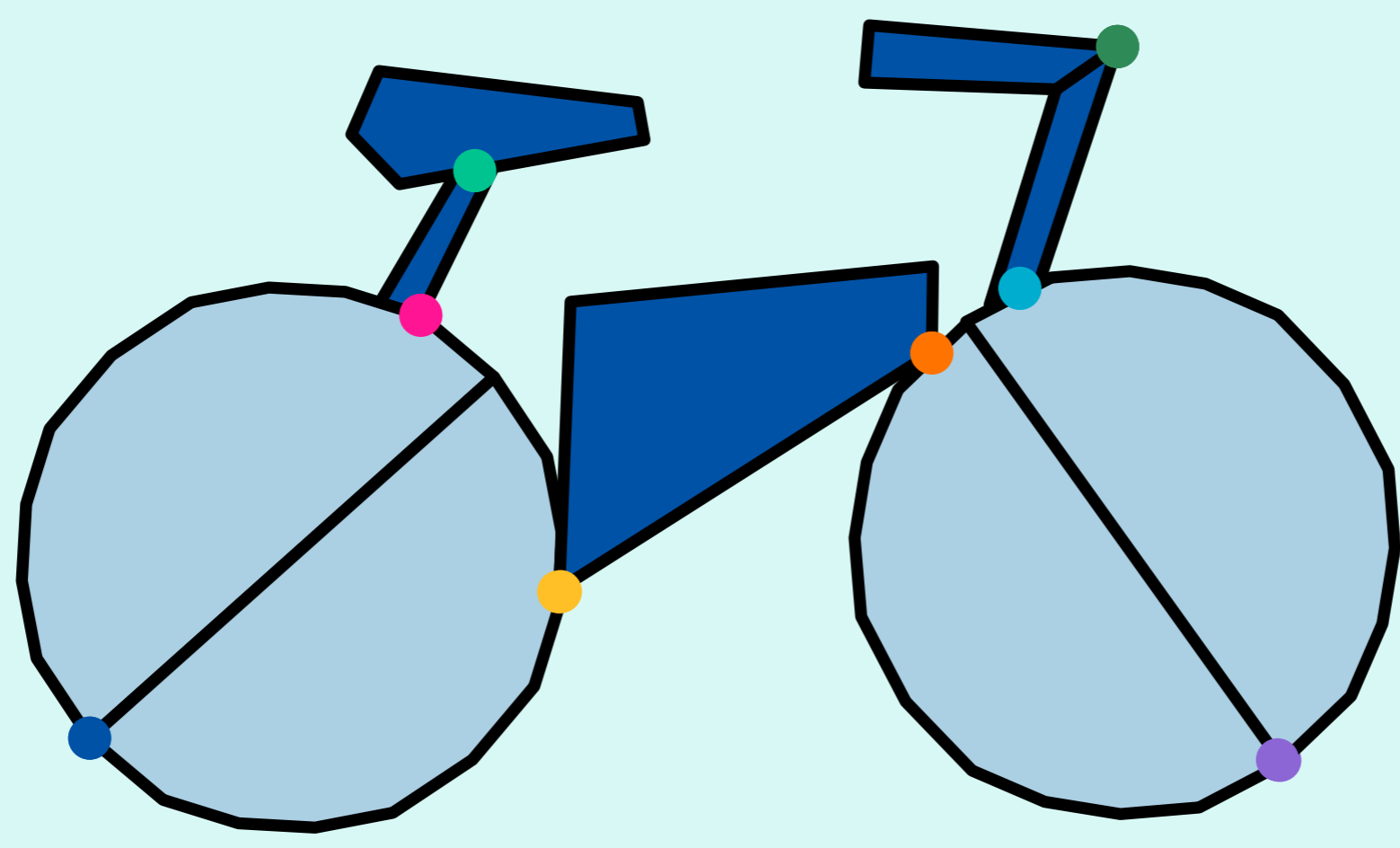
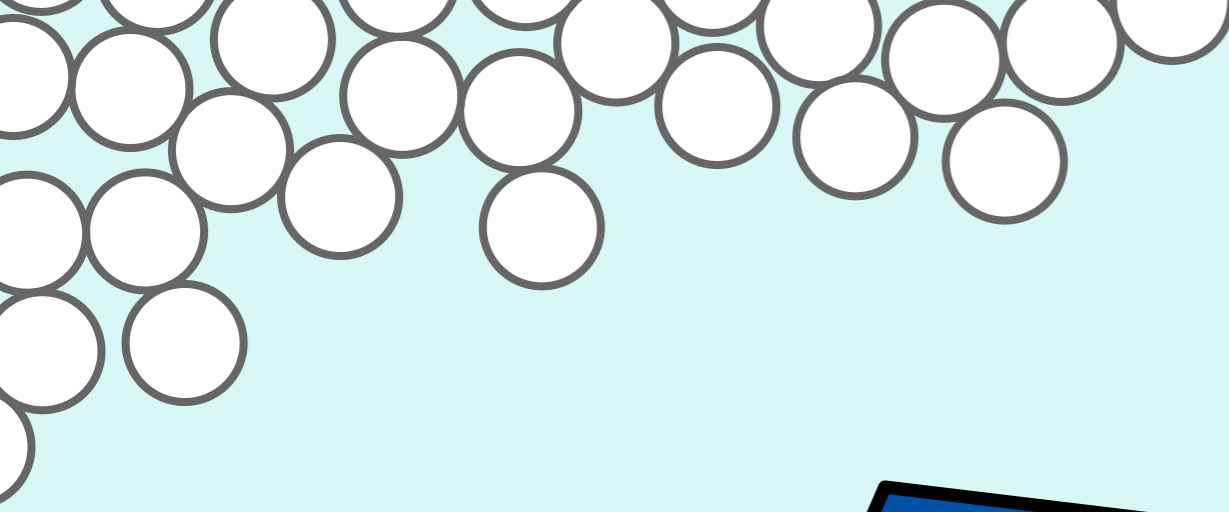


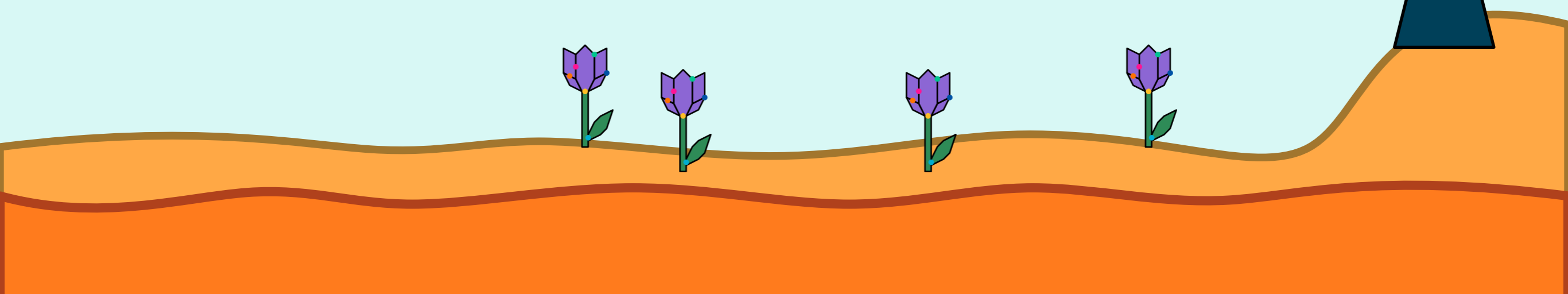
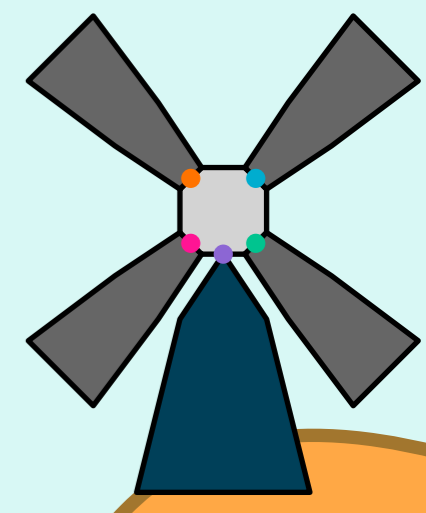
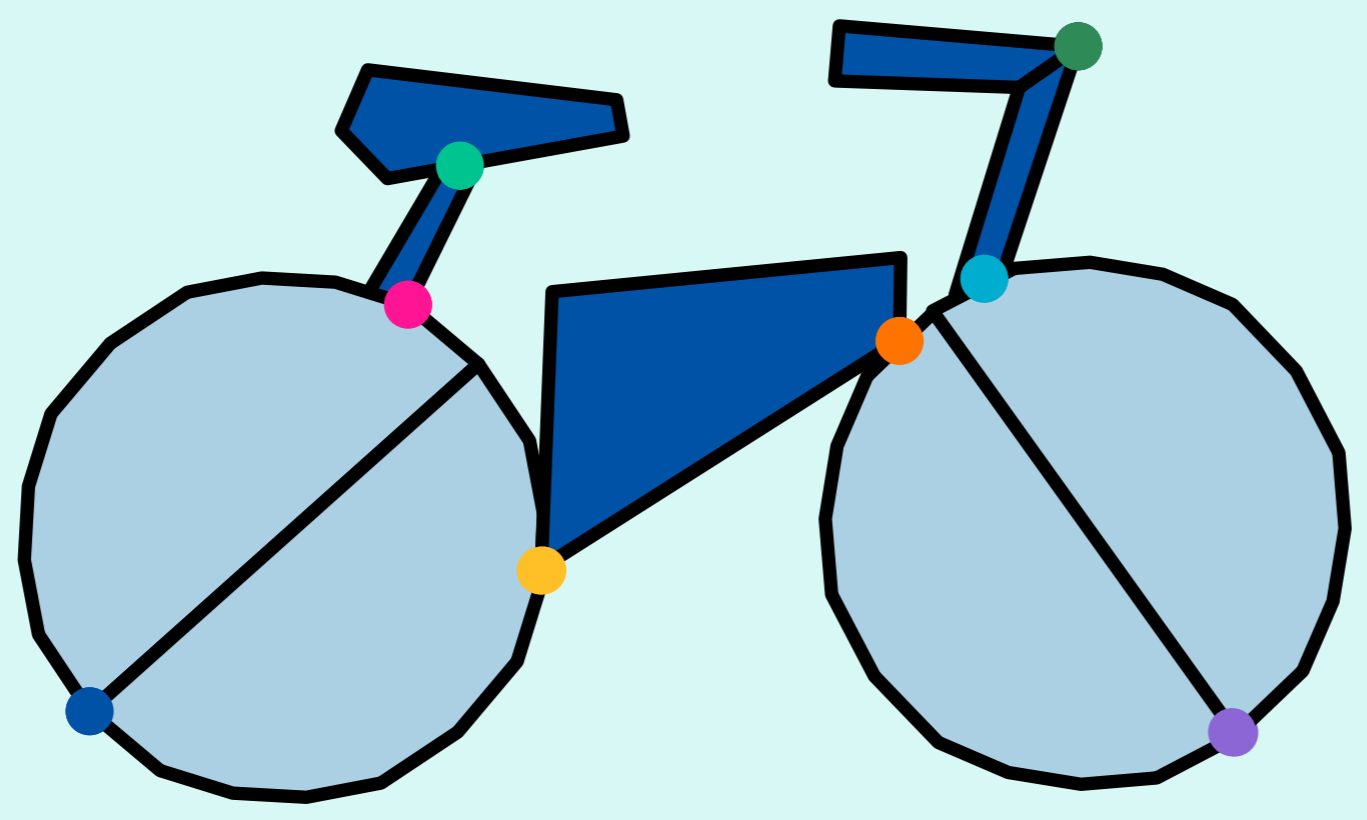
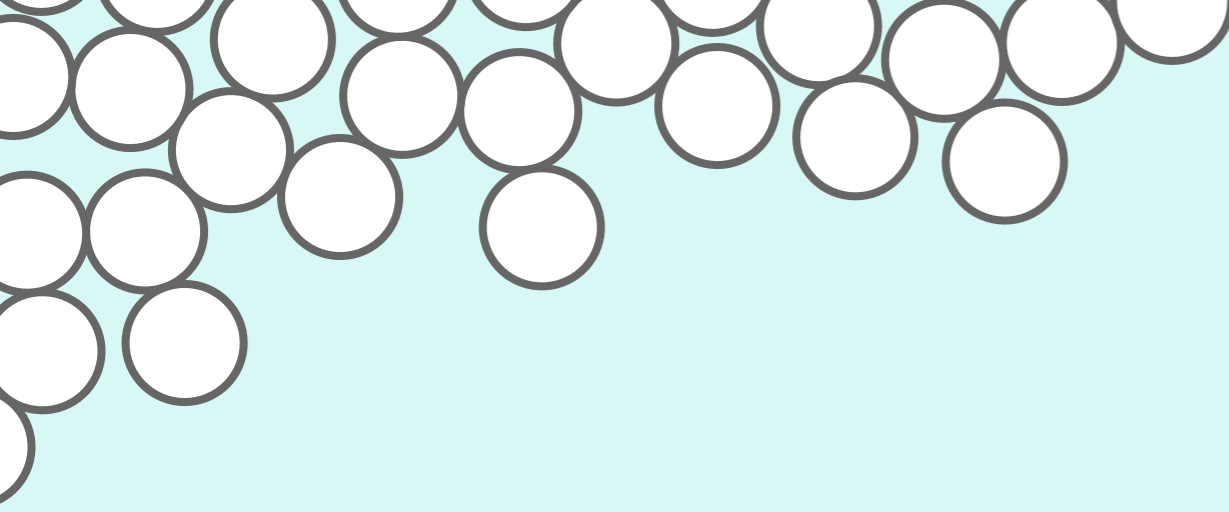


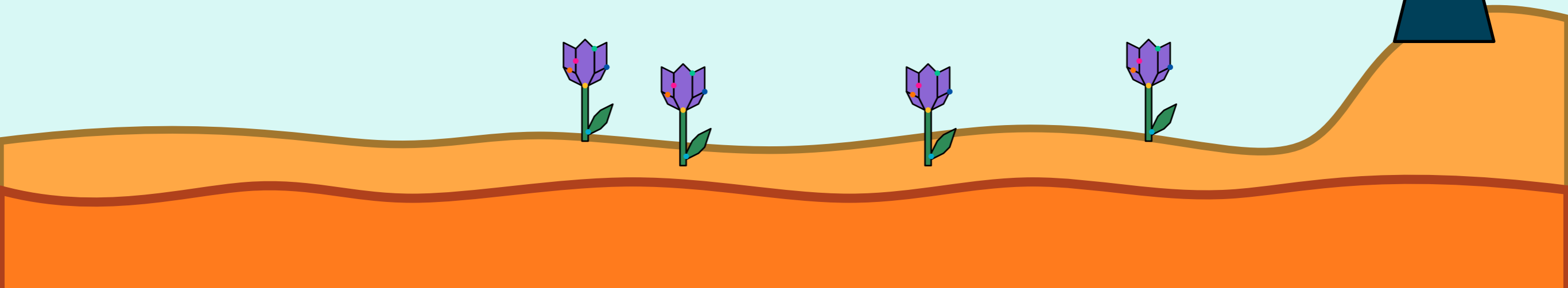
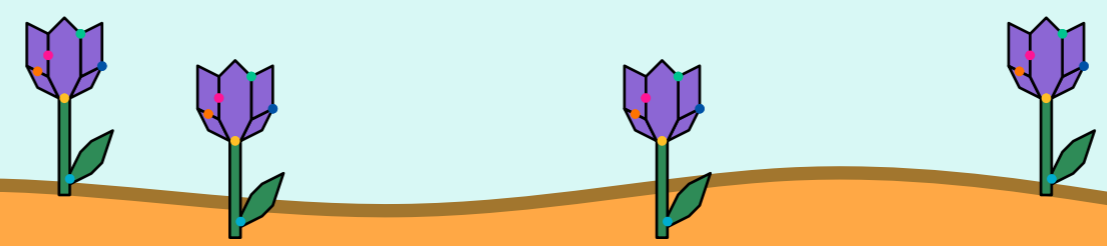
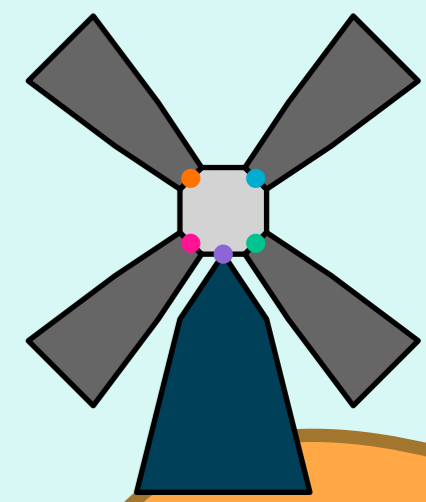
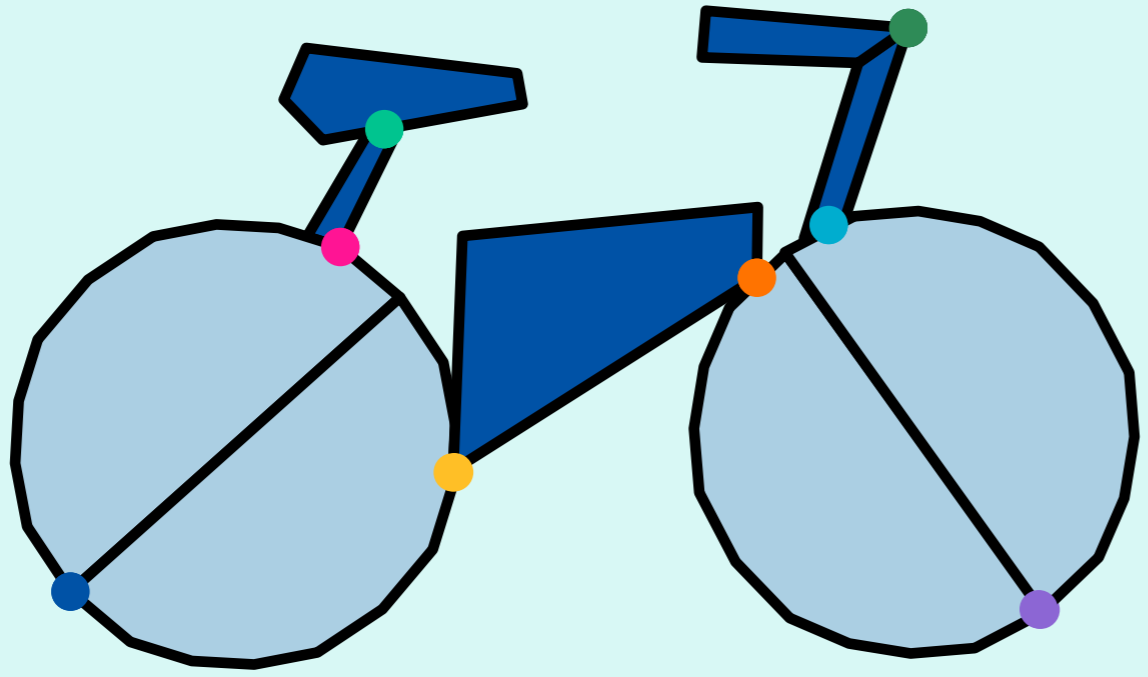
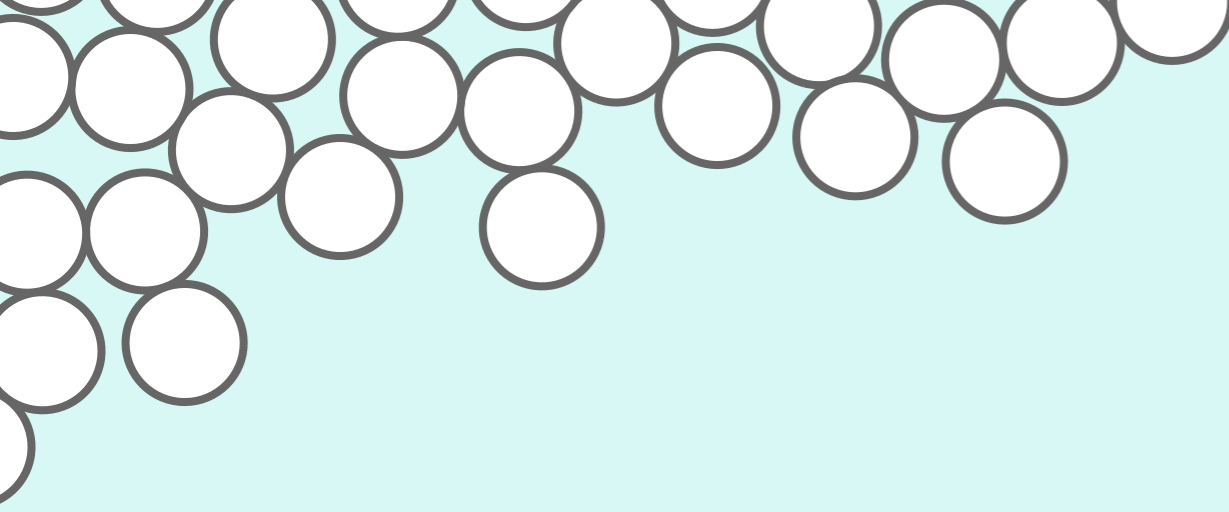


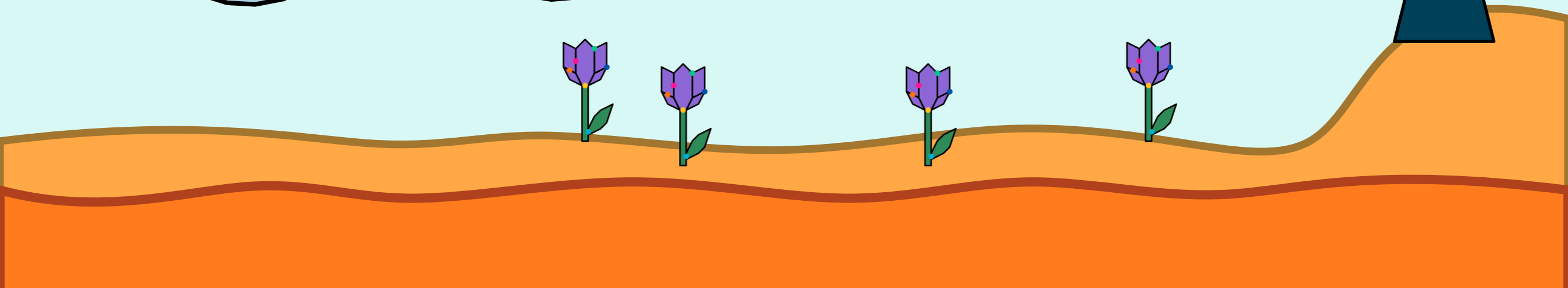
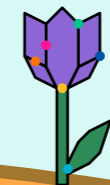
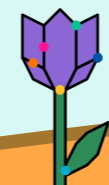
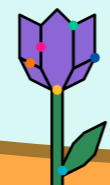
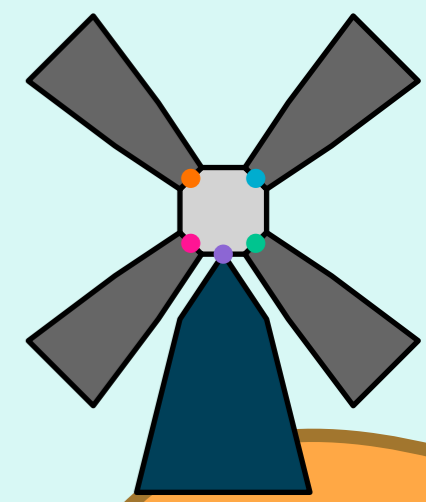
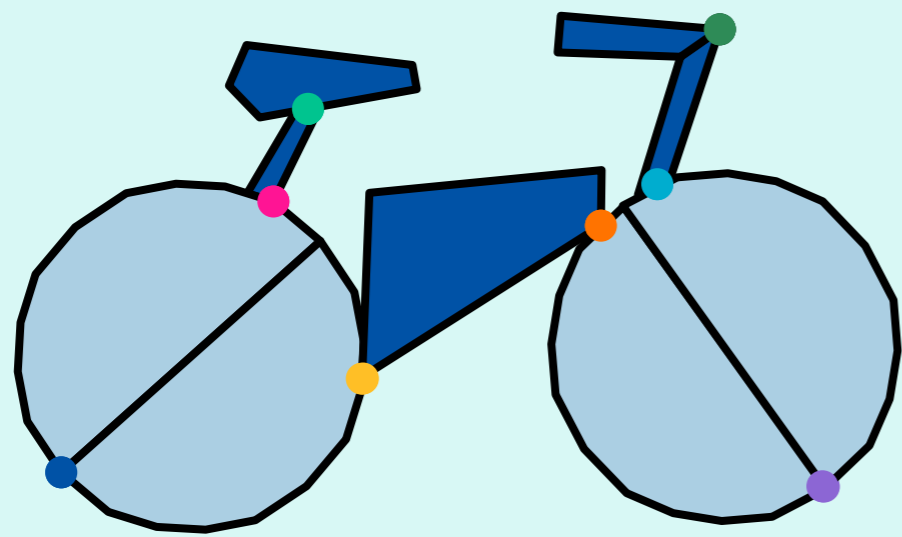
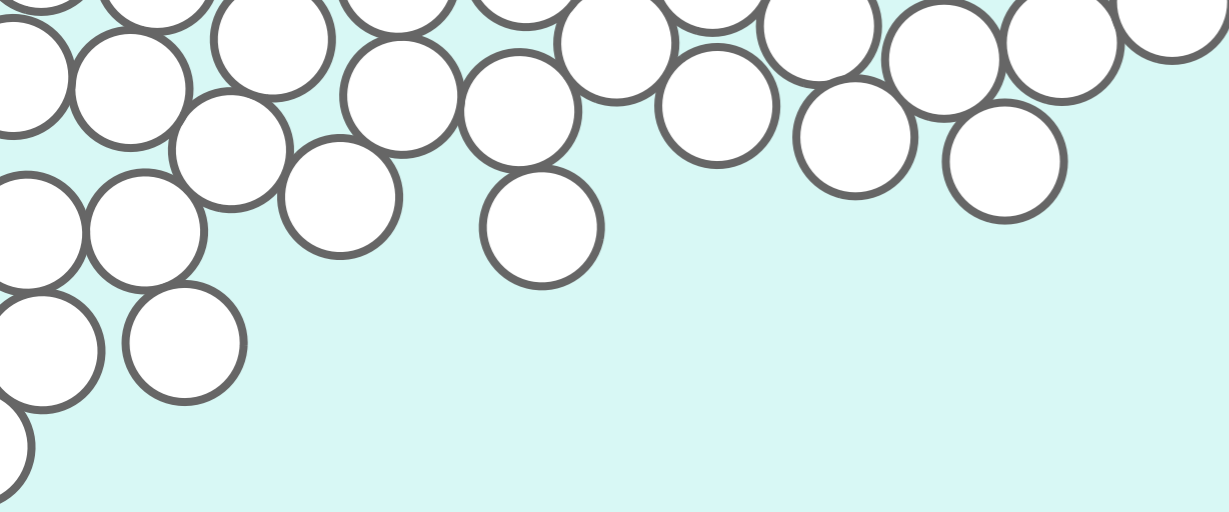


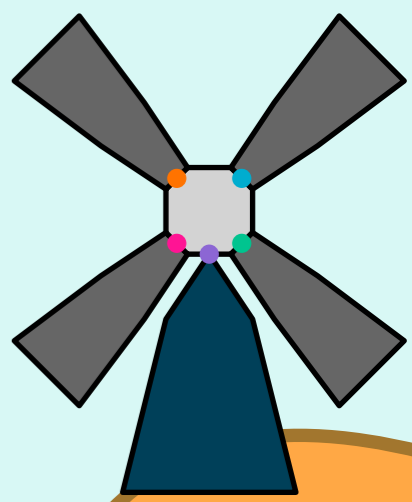
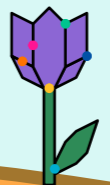
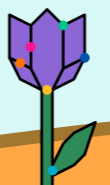
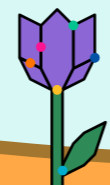
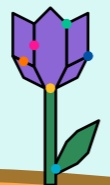
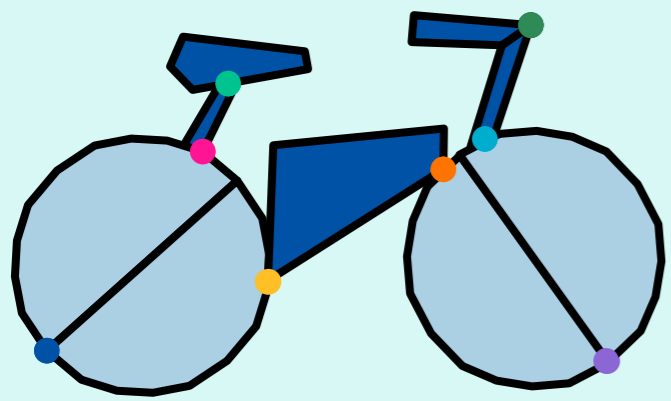
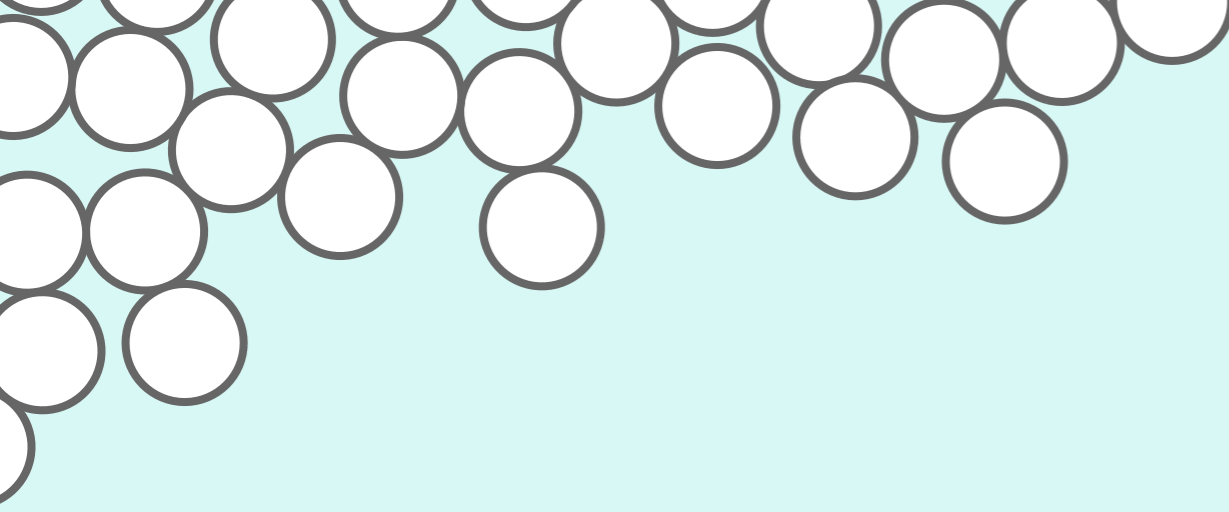


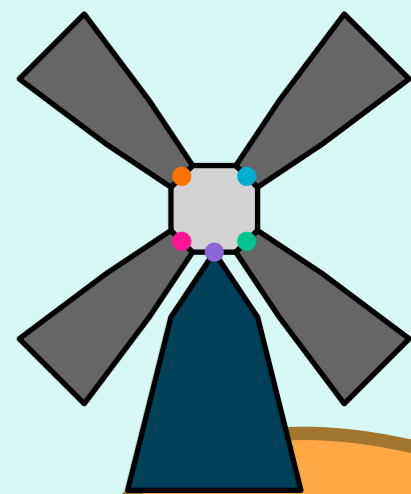
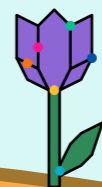
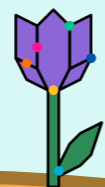
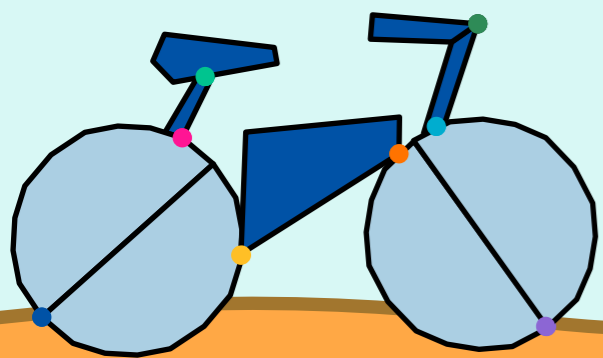
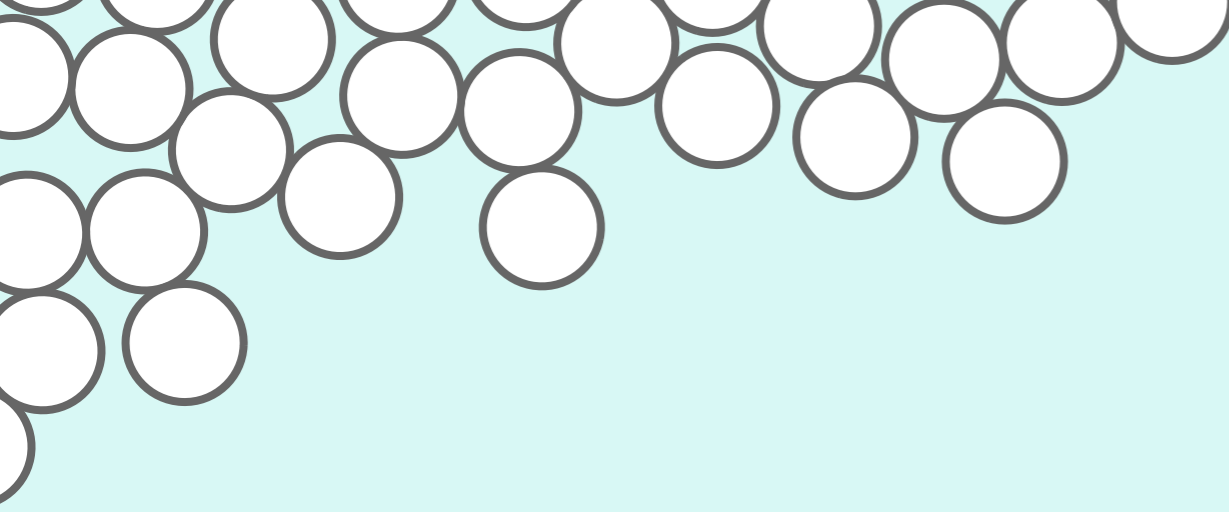




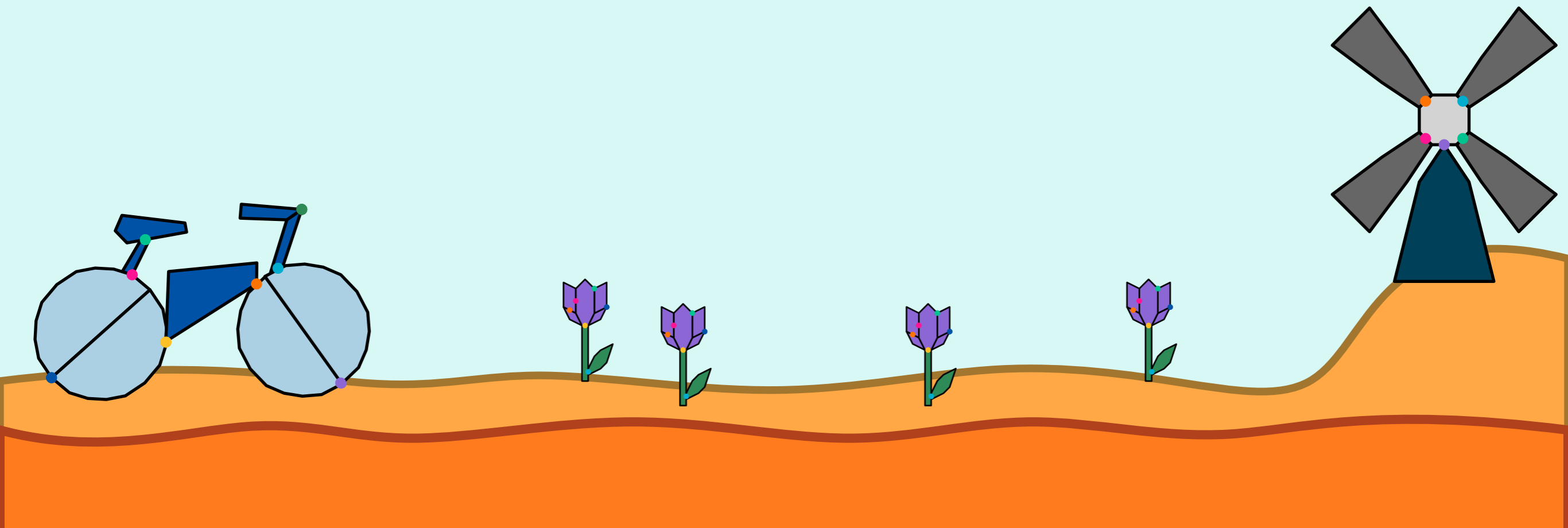


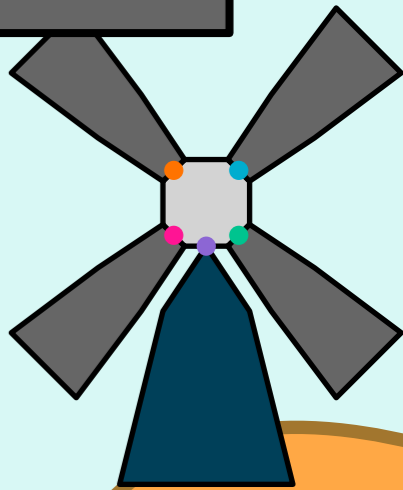
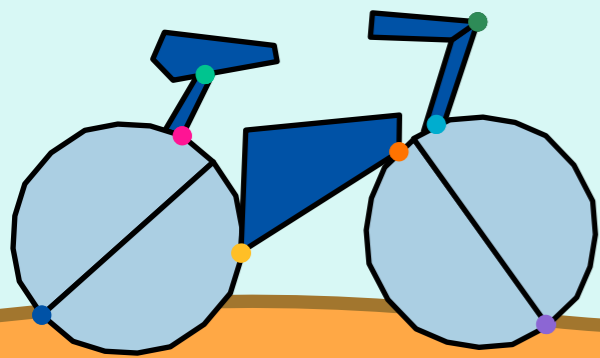
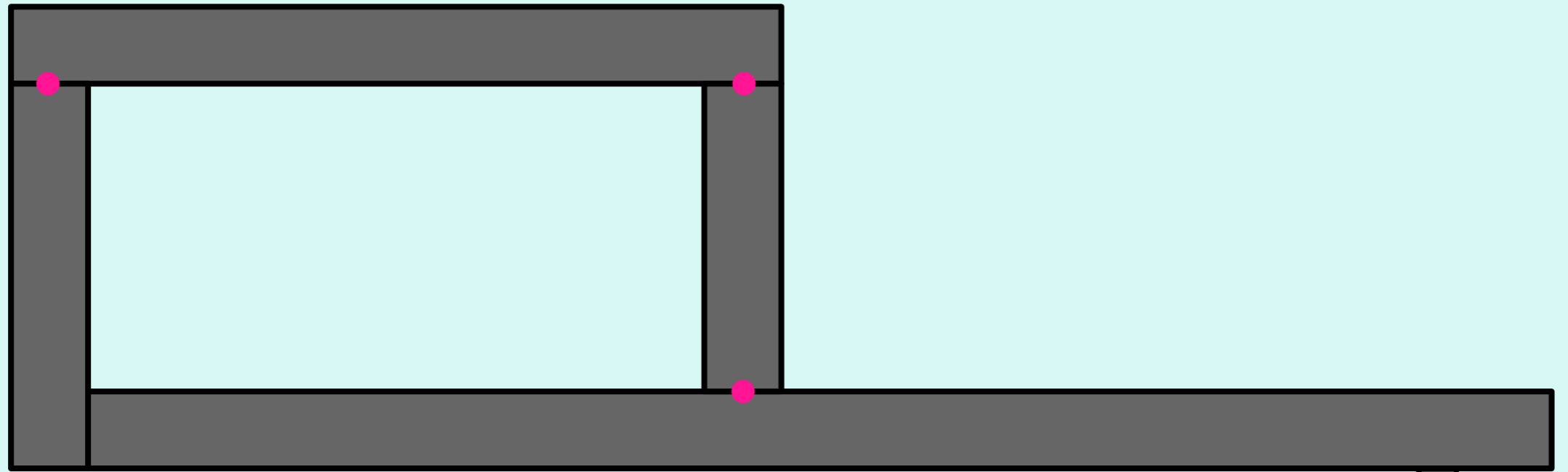
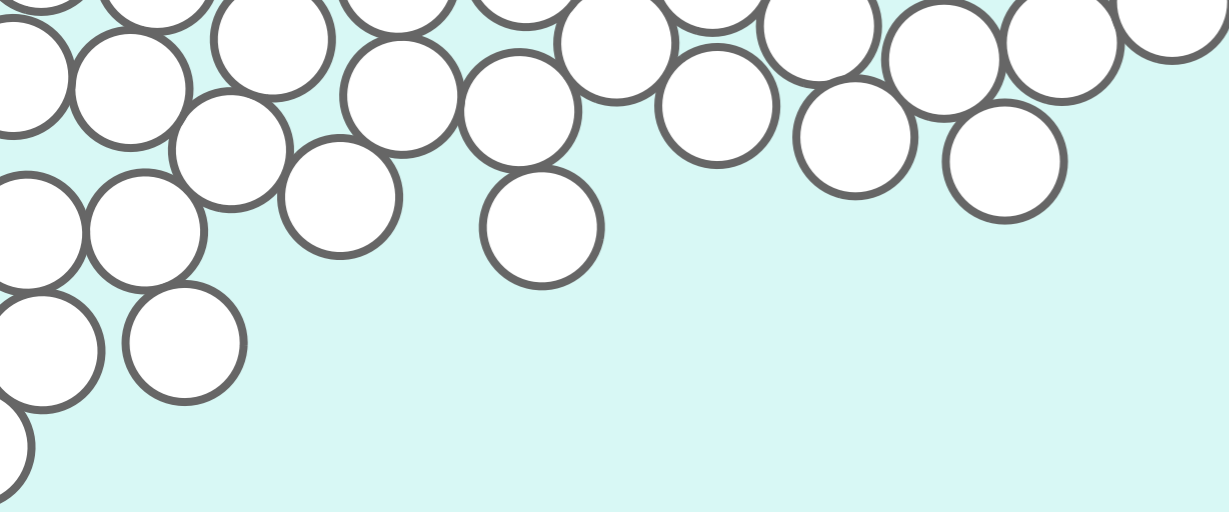


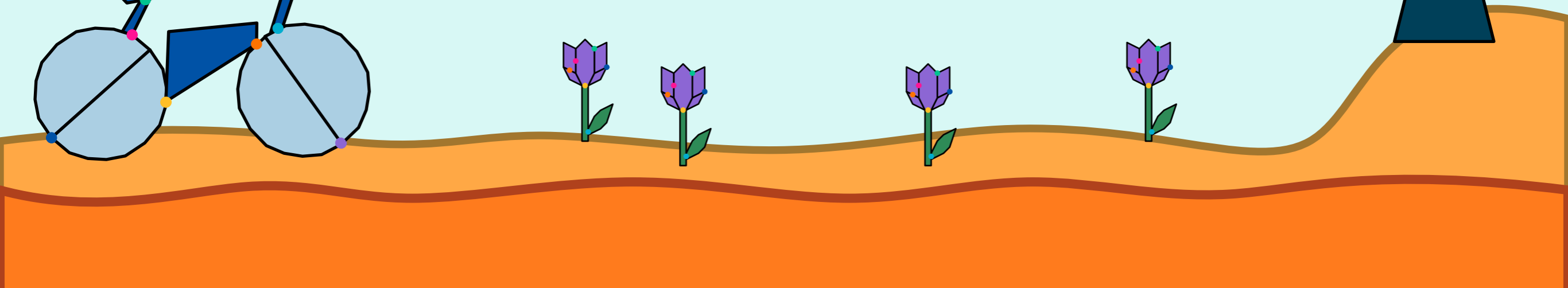
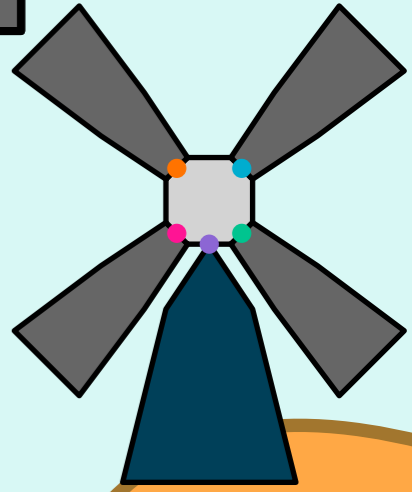
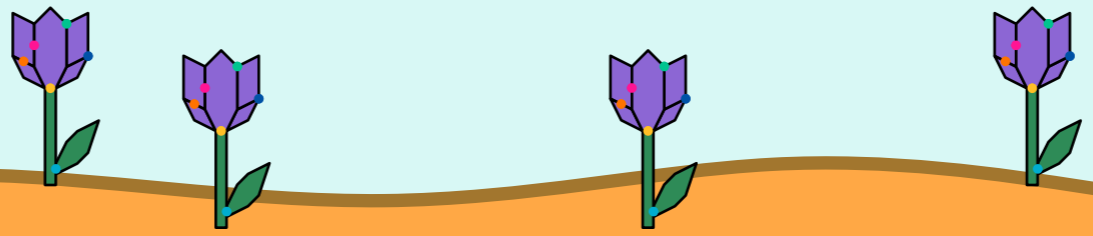
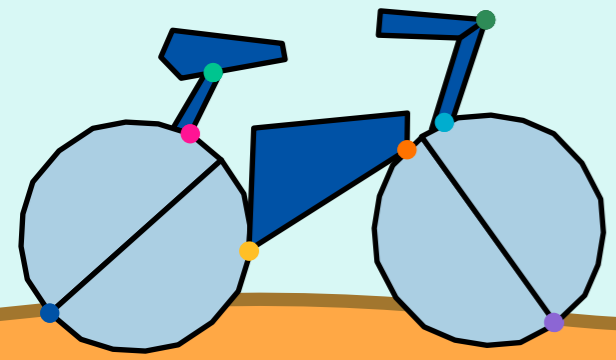
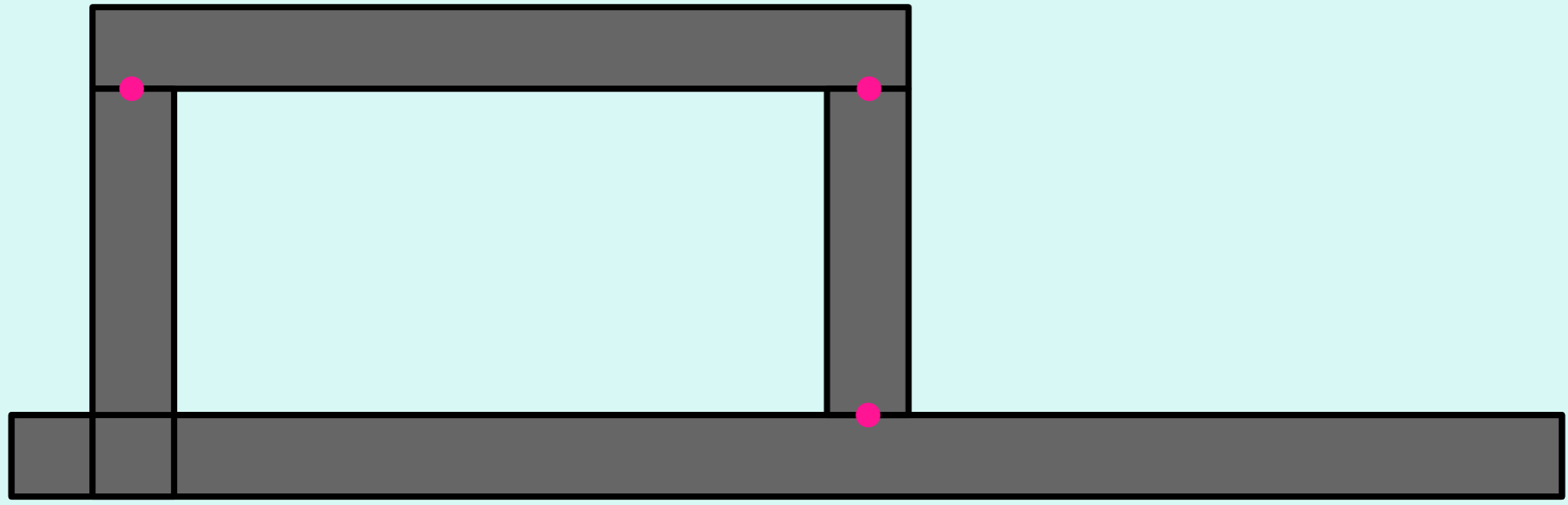
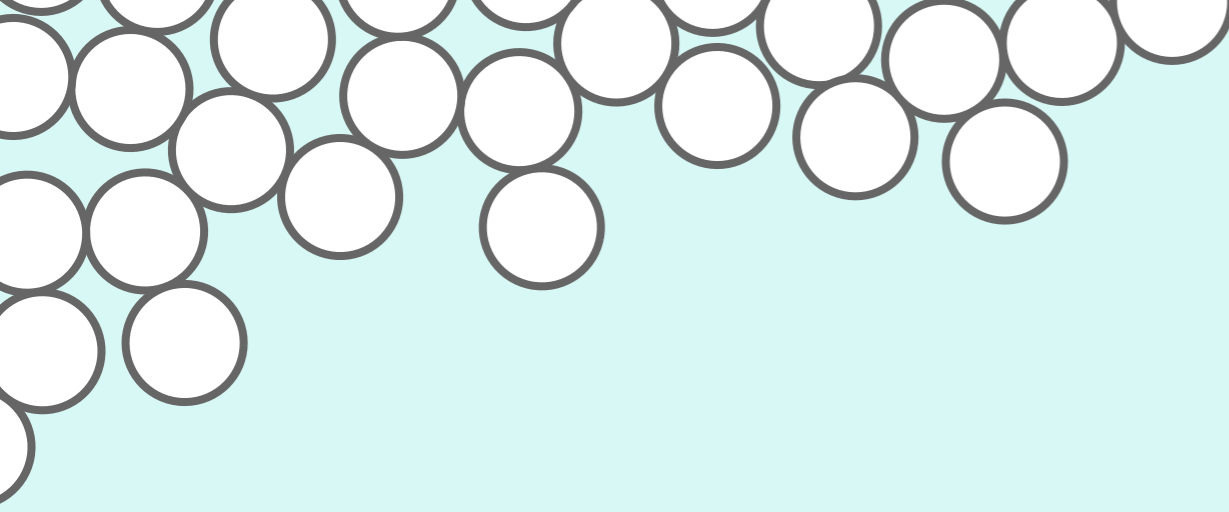


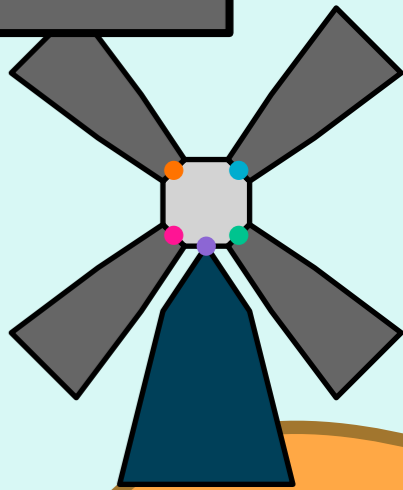
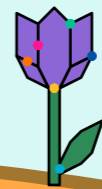
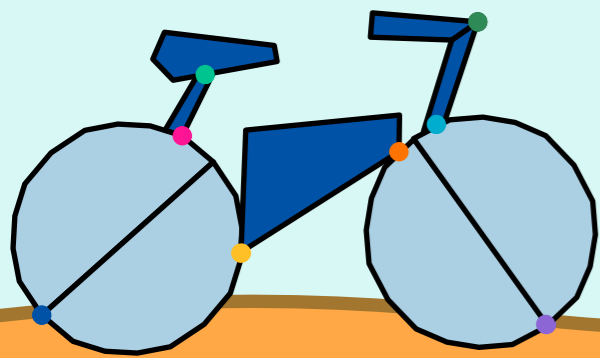
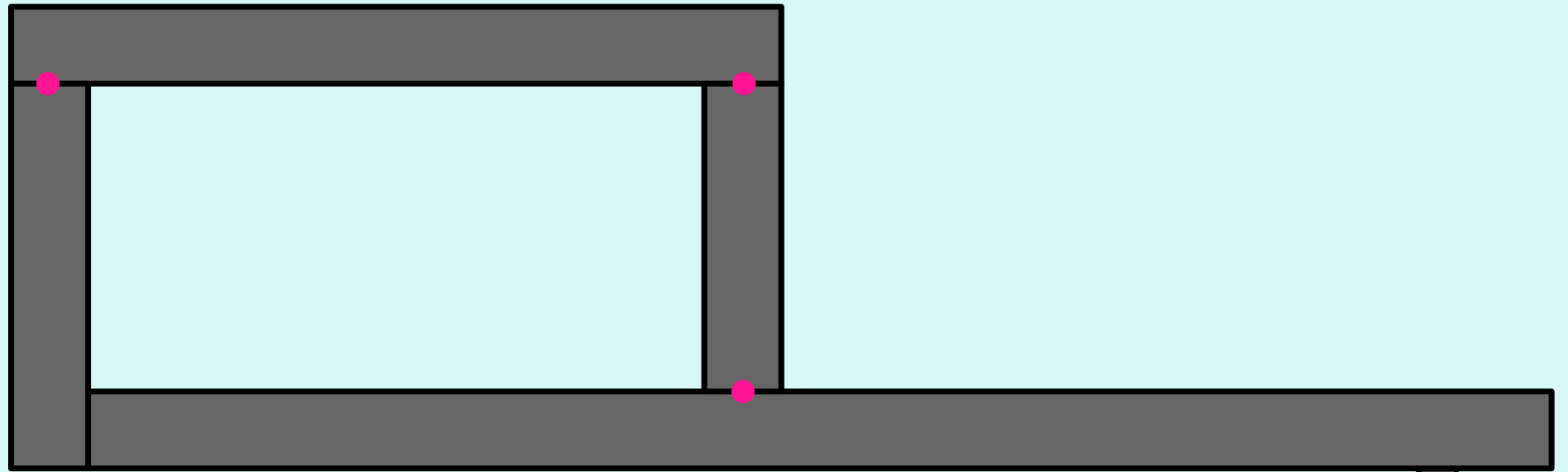
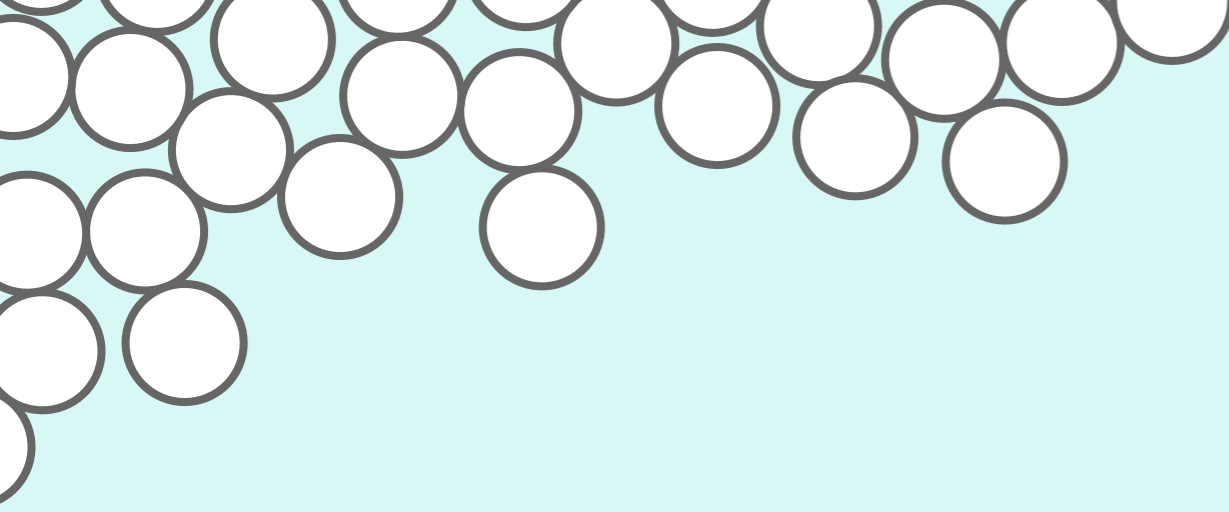


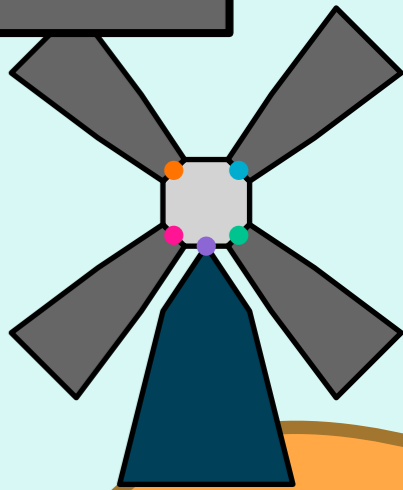
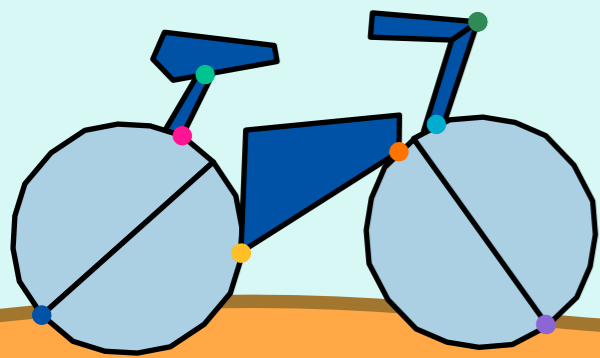
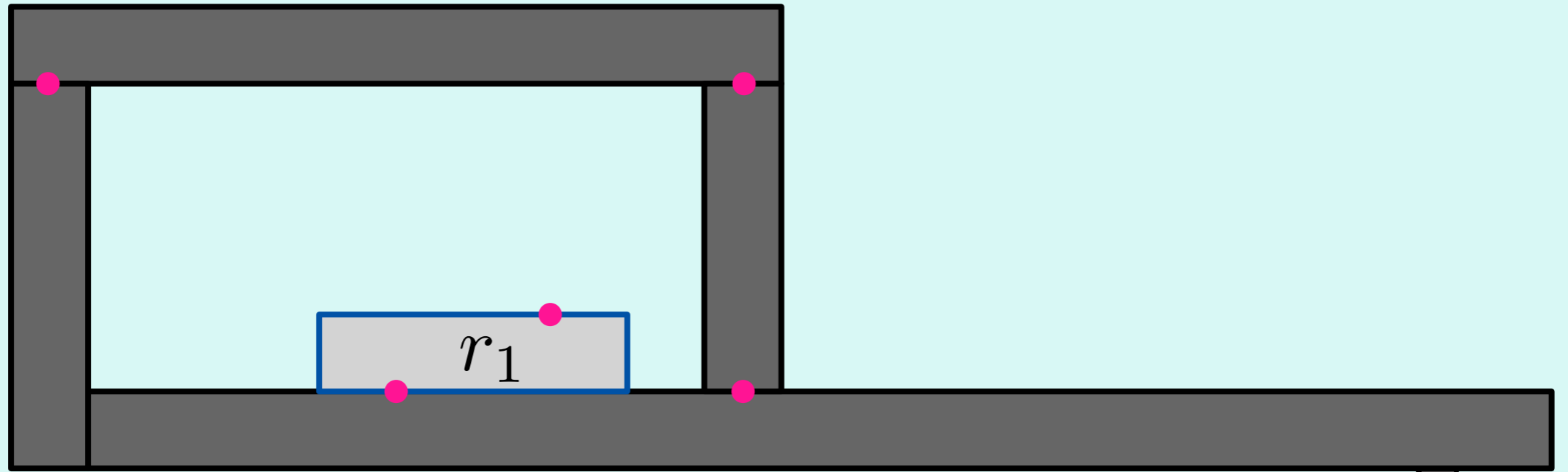
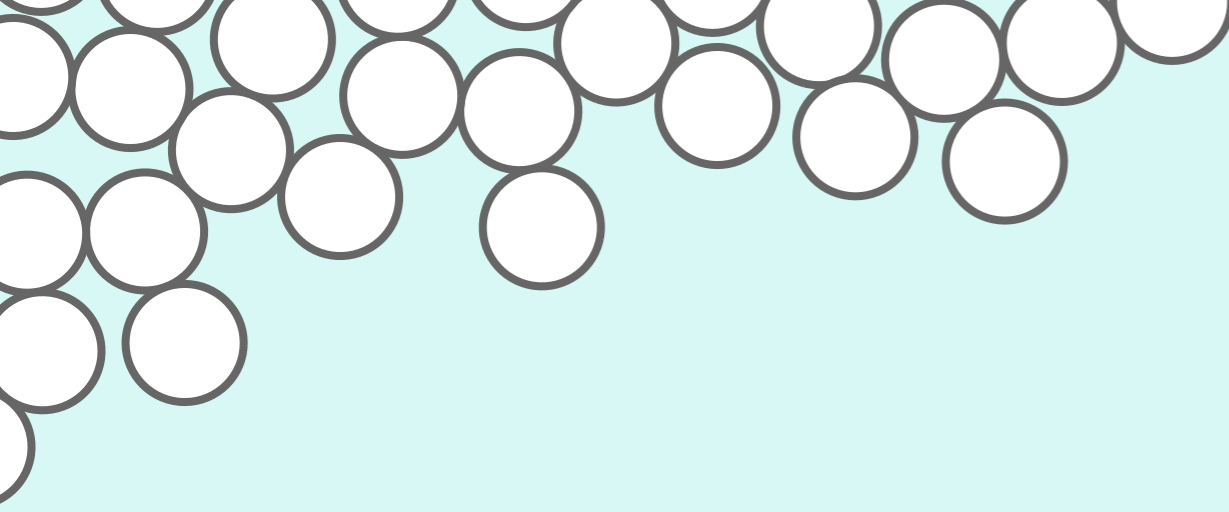
a simple hardness proof

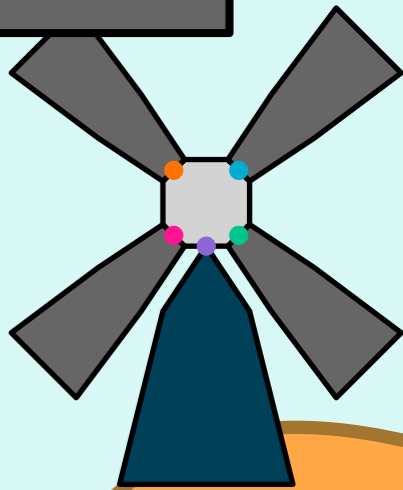
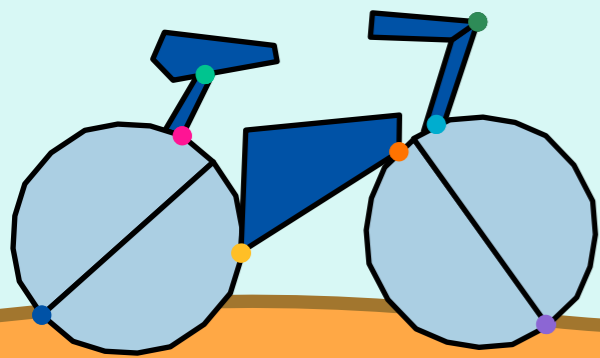
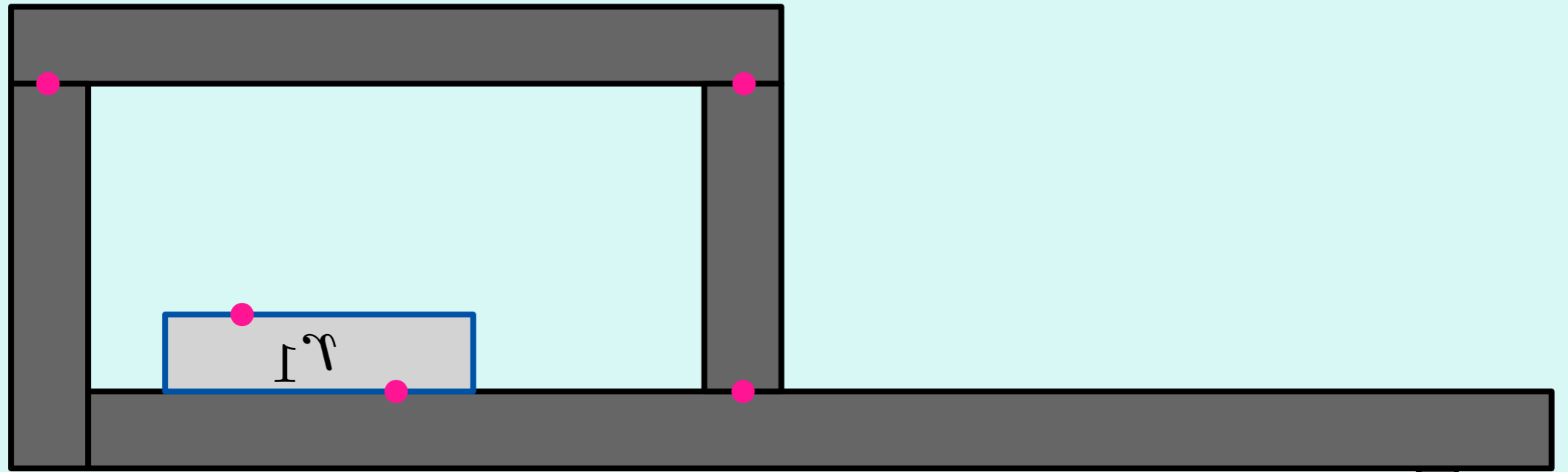
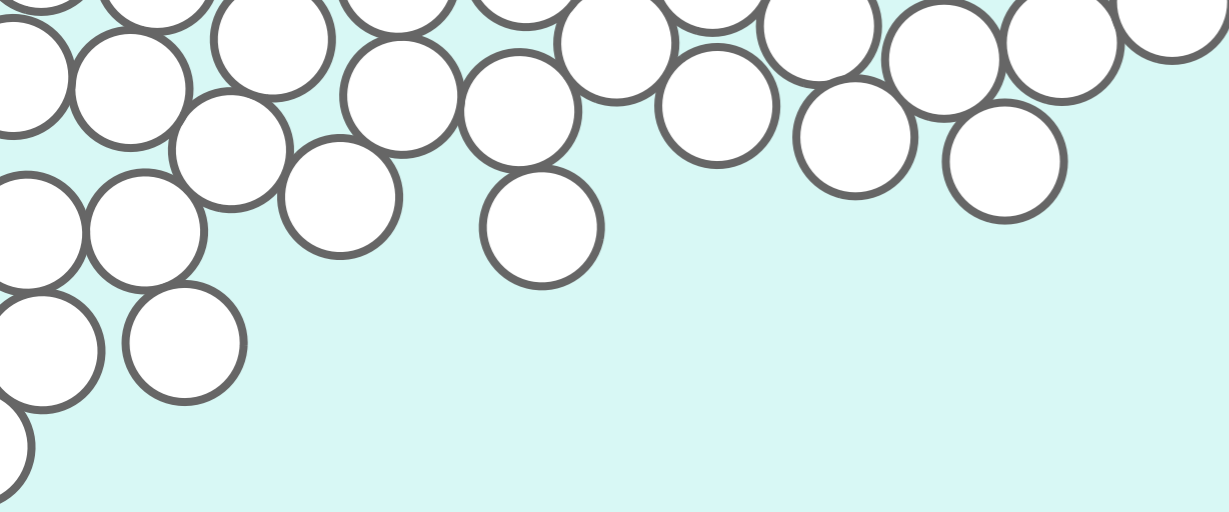


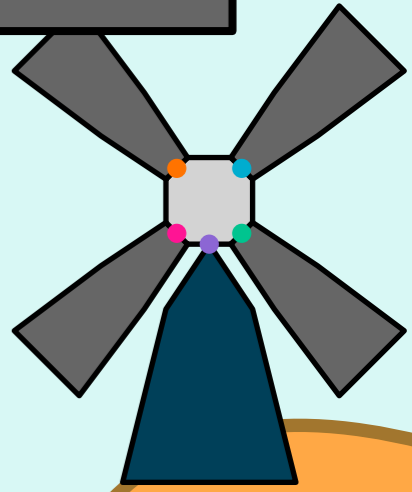
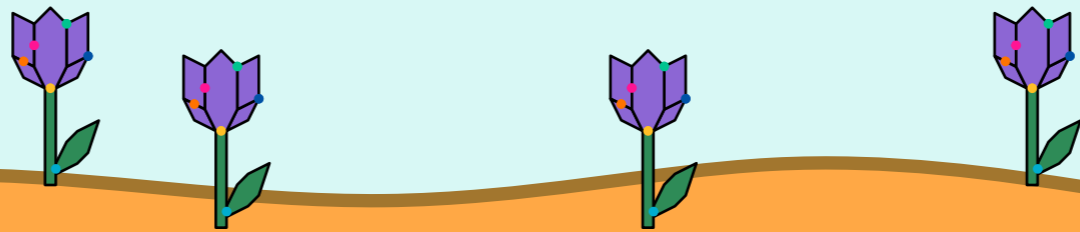
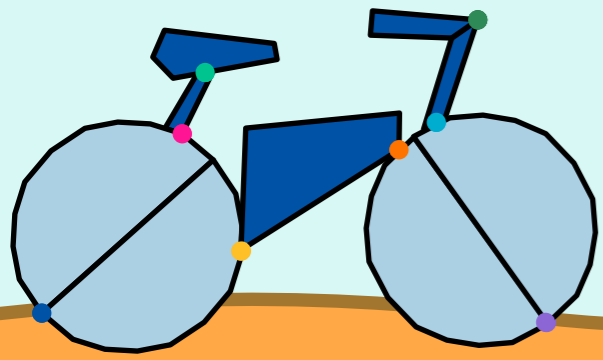
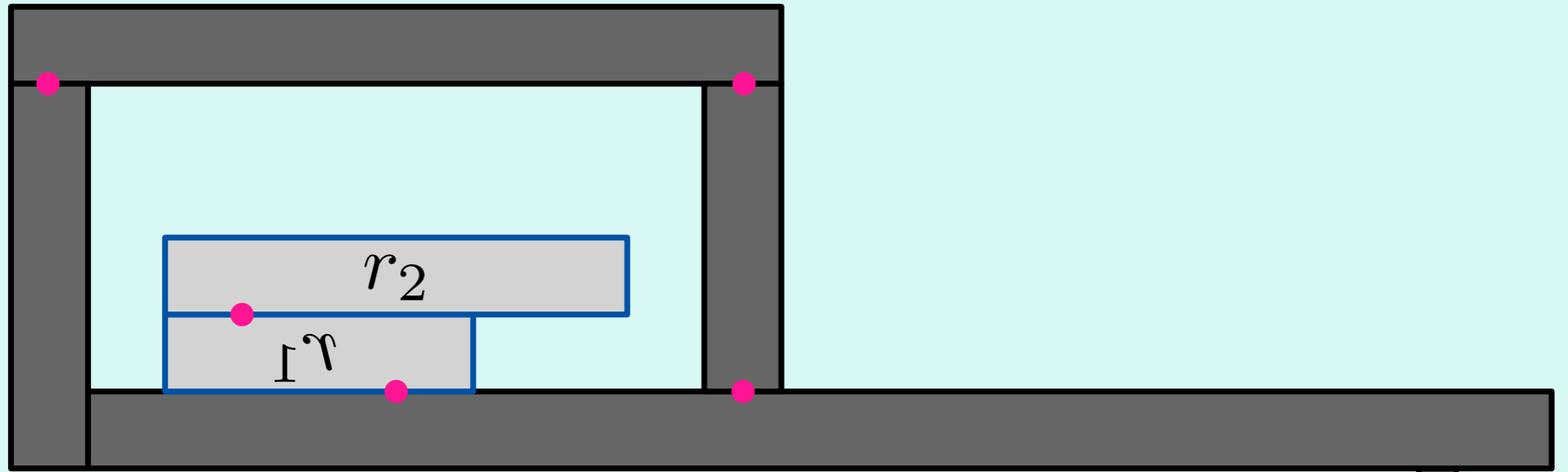
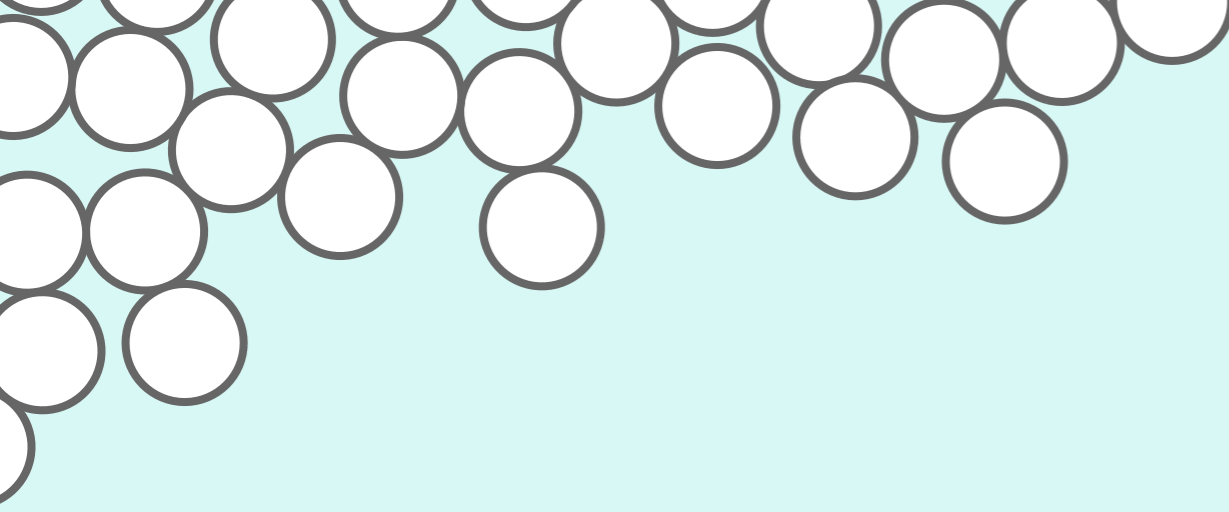


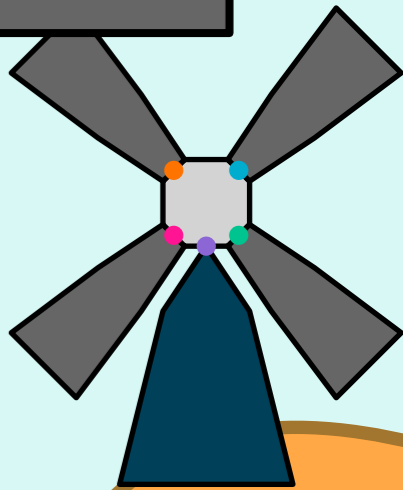
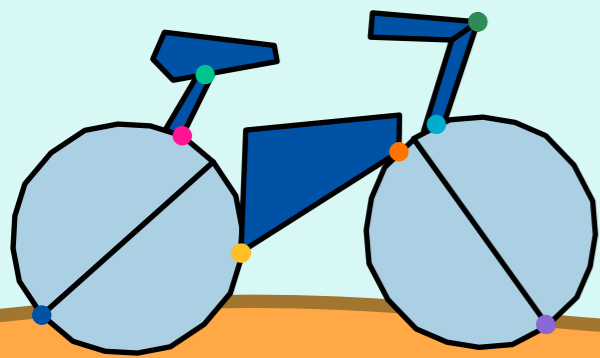
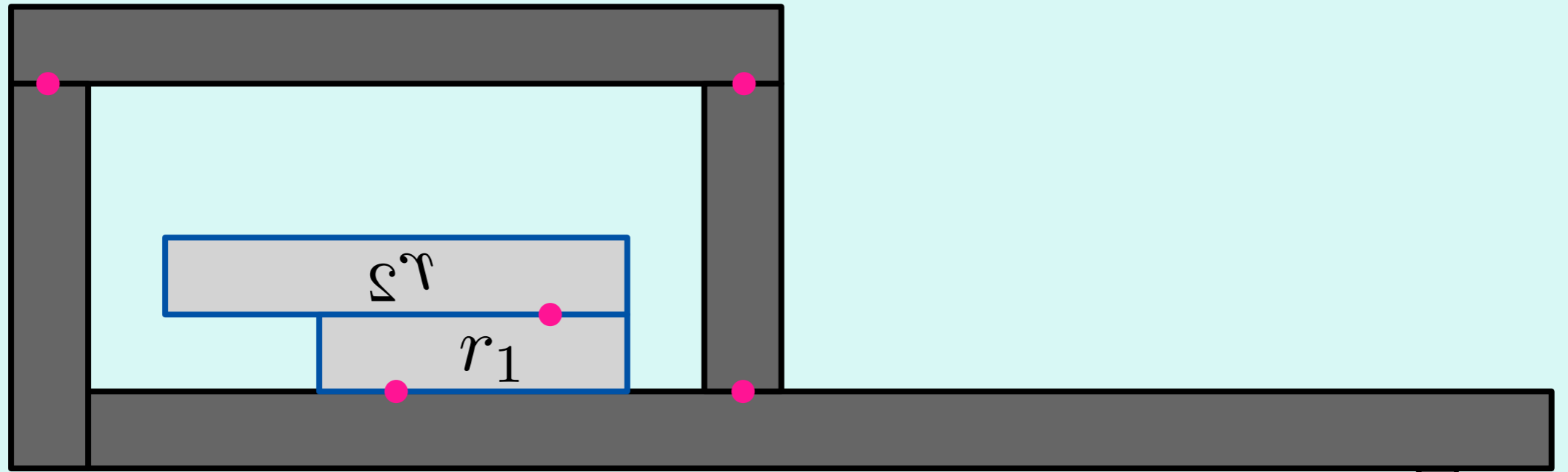
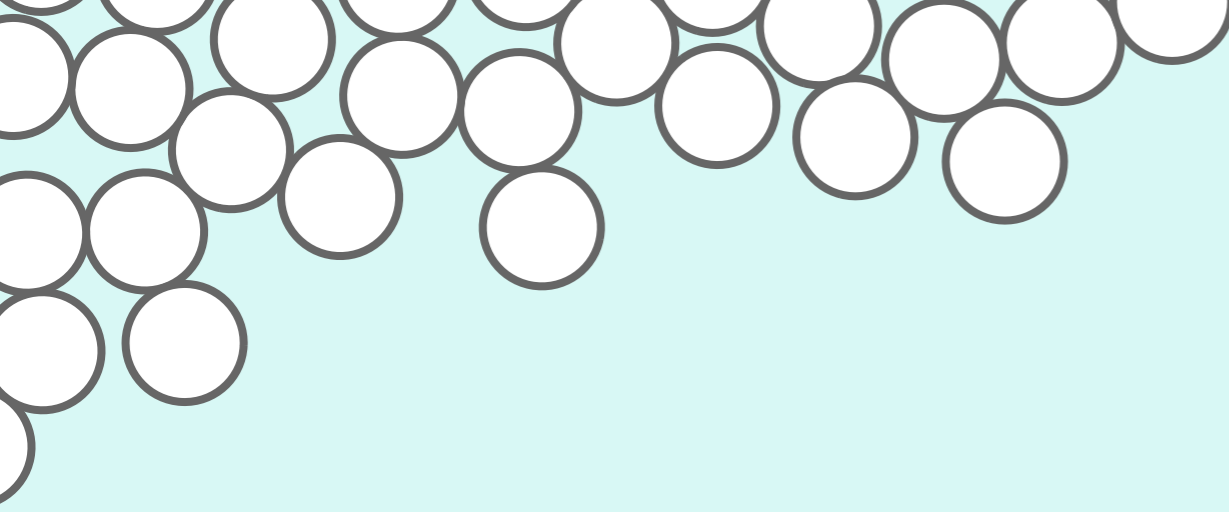


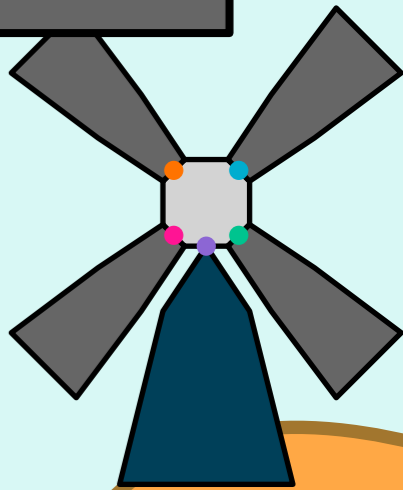
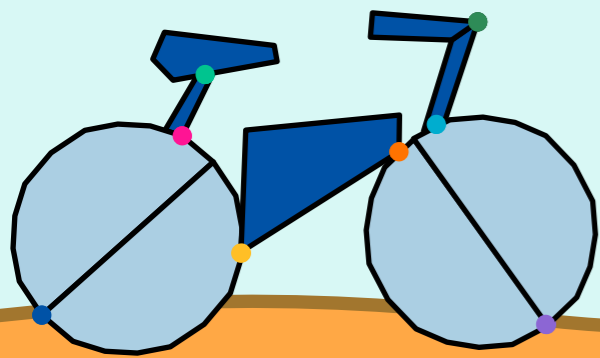
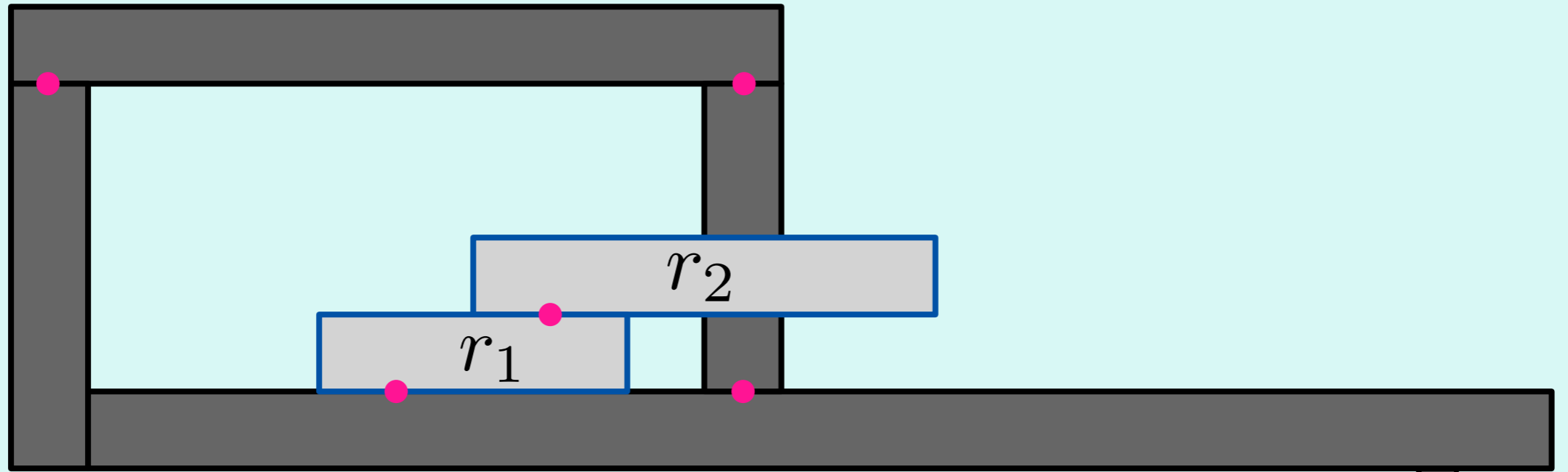
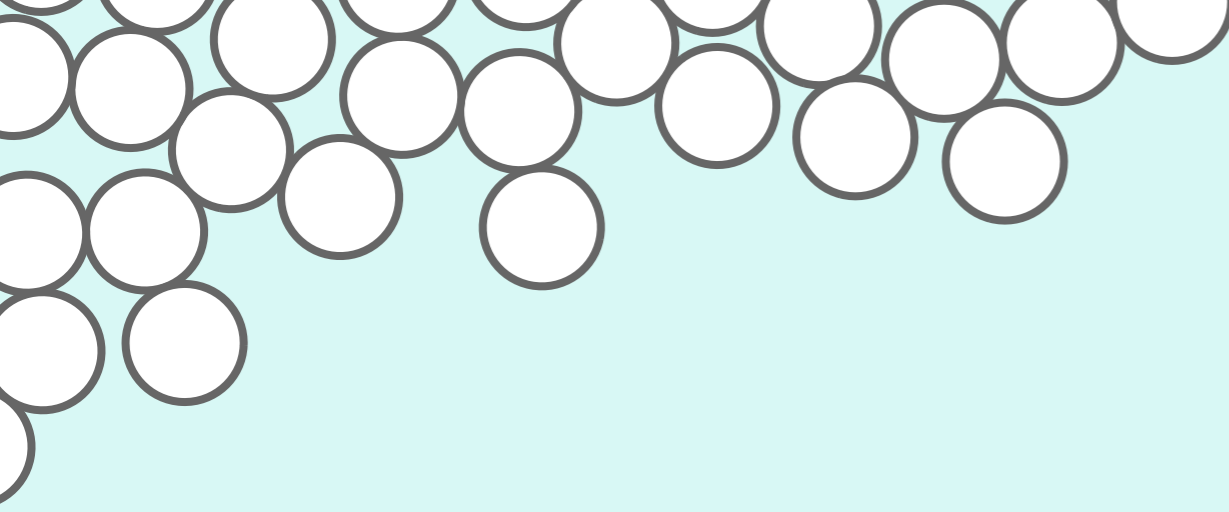


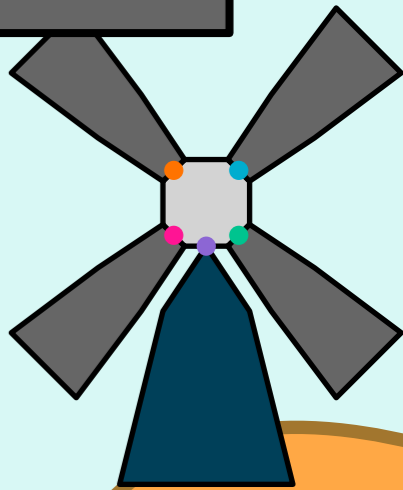
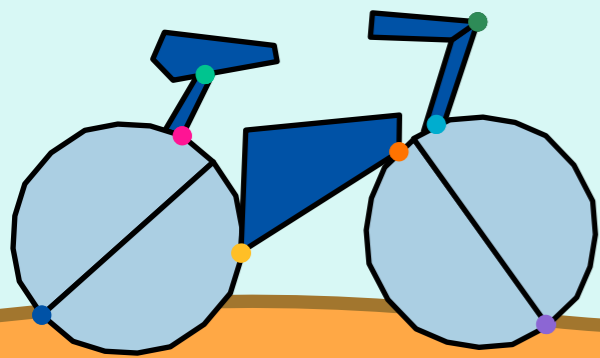
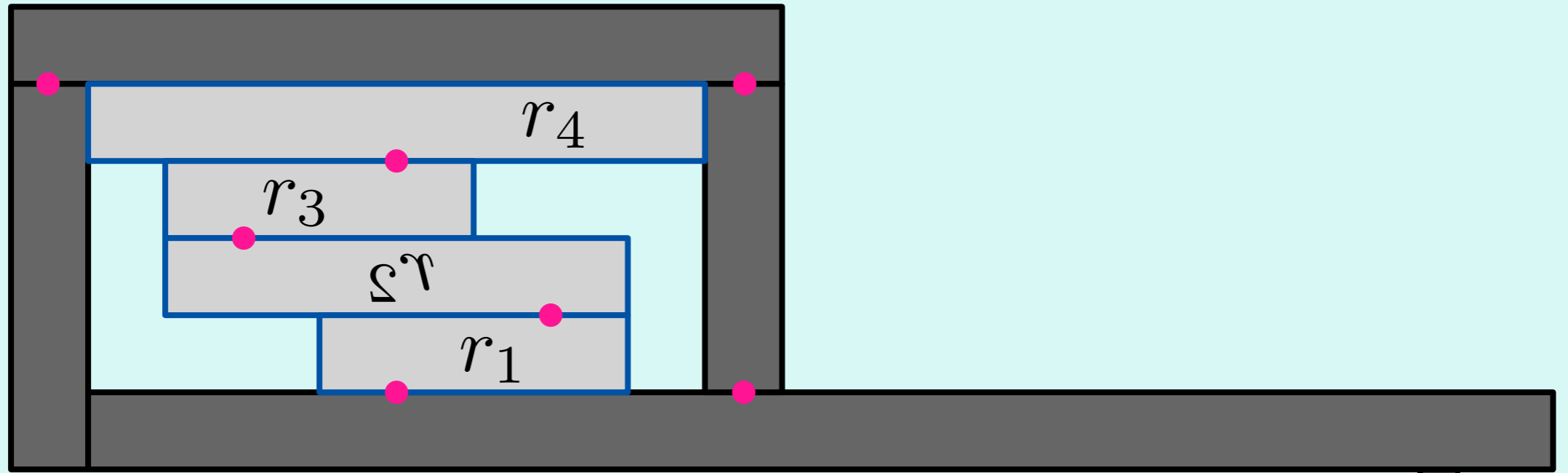
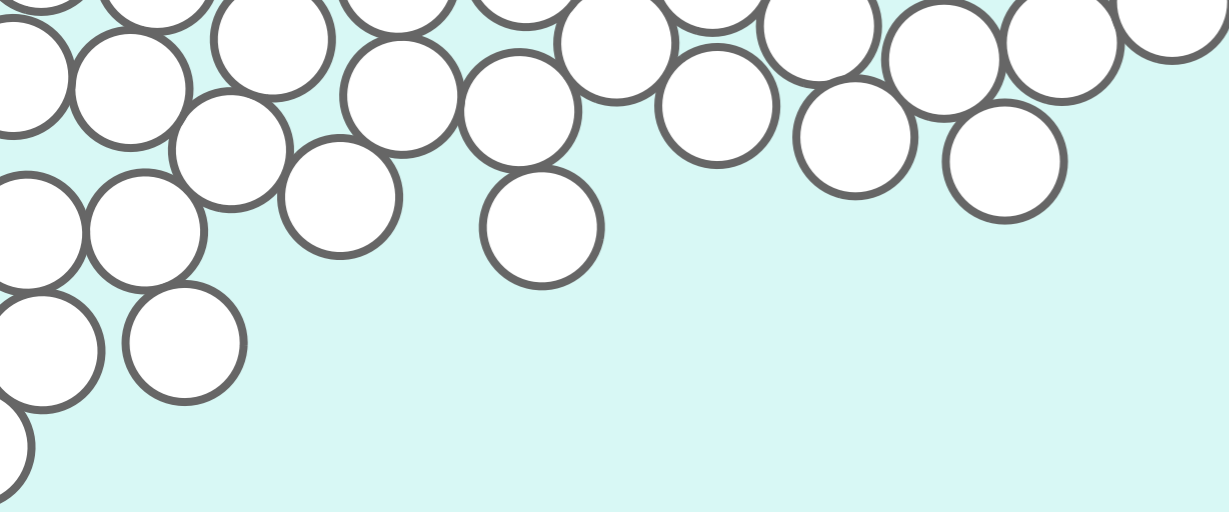


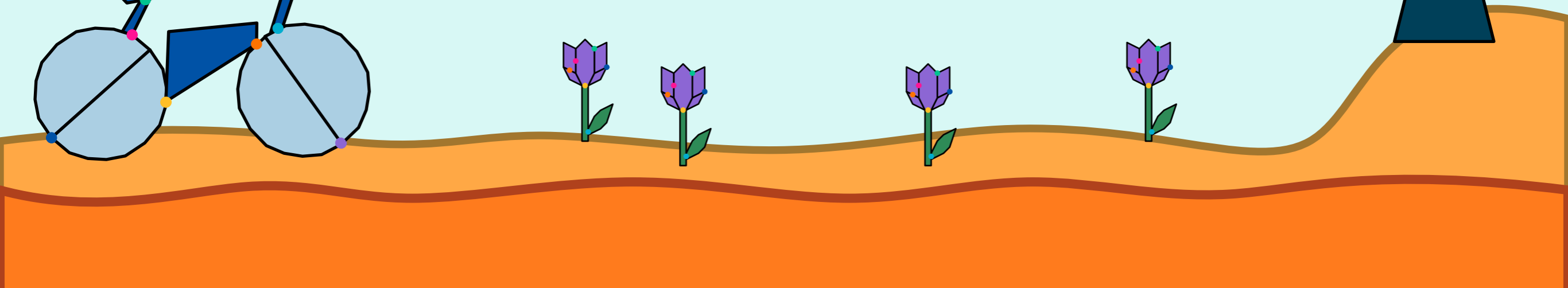
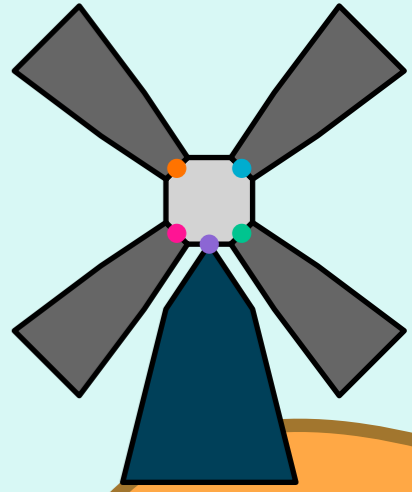
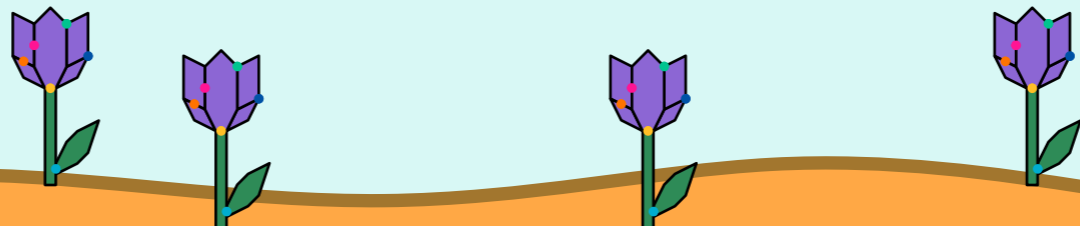
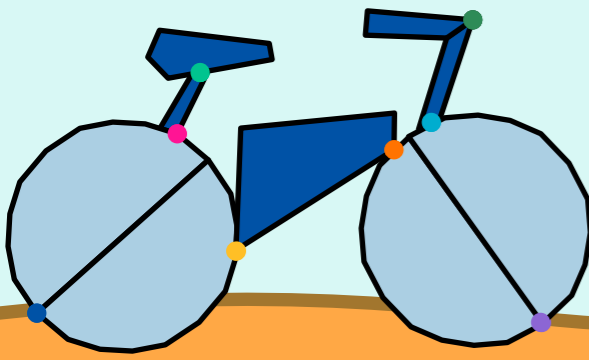
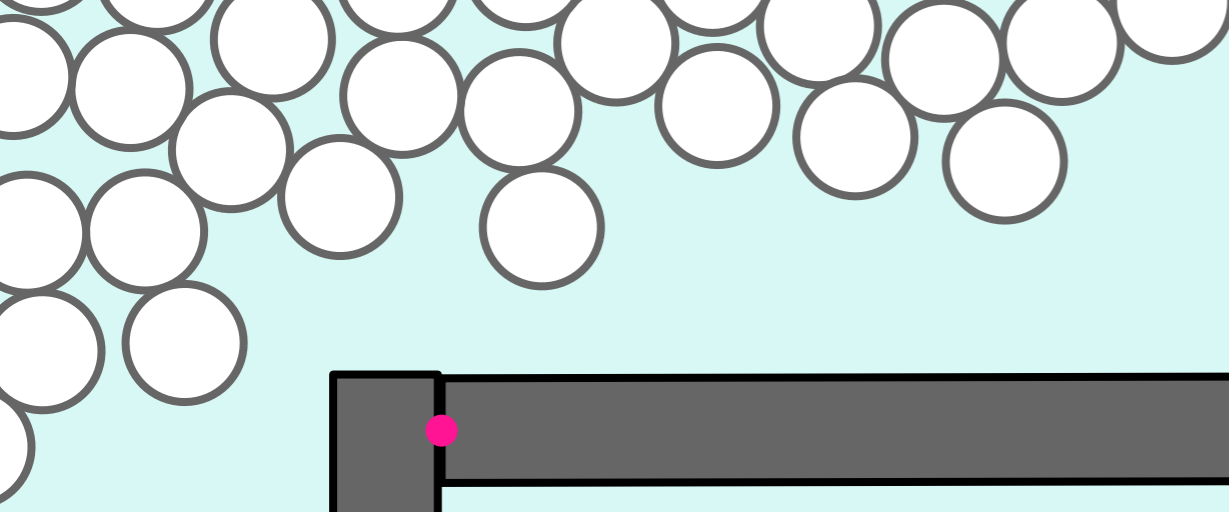


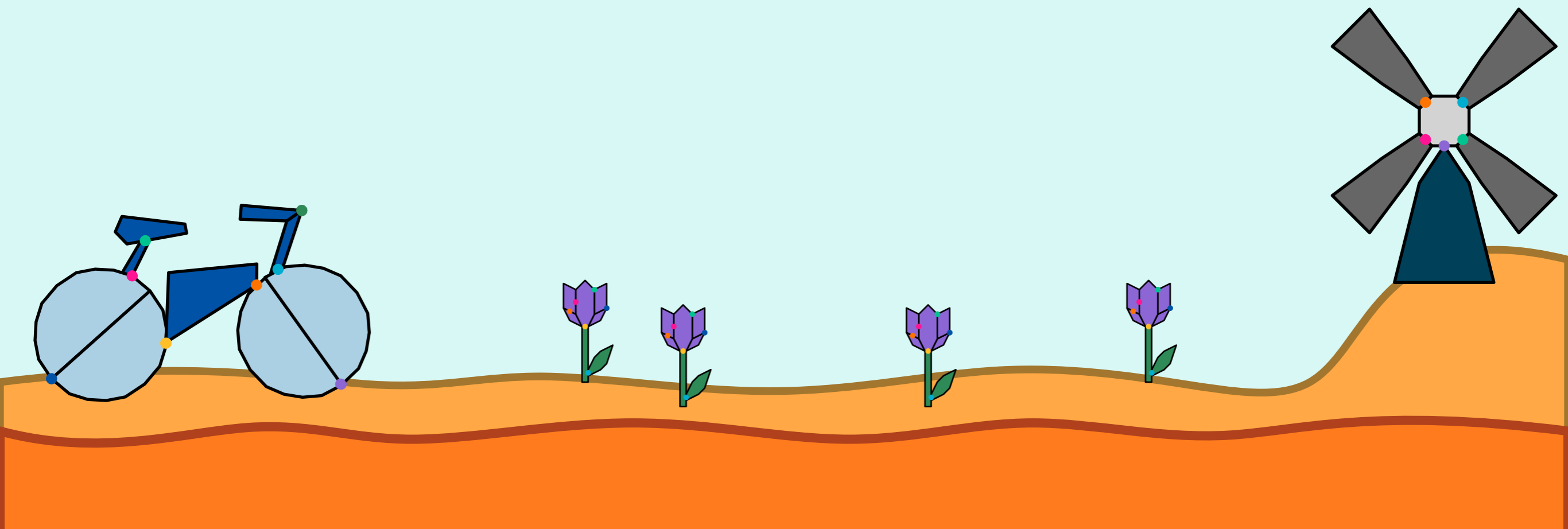
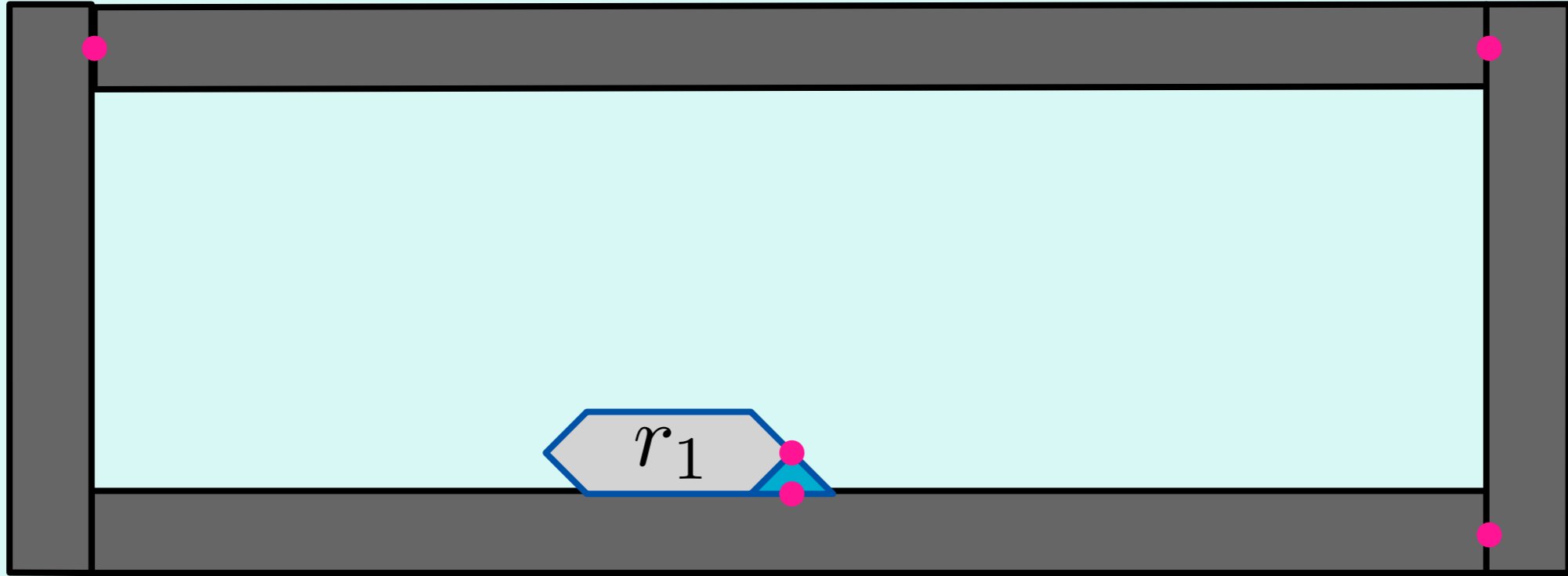
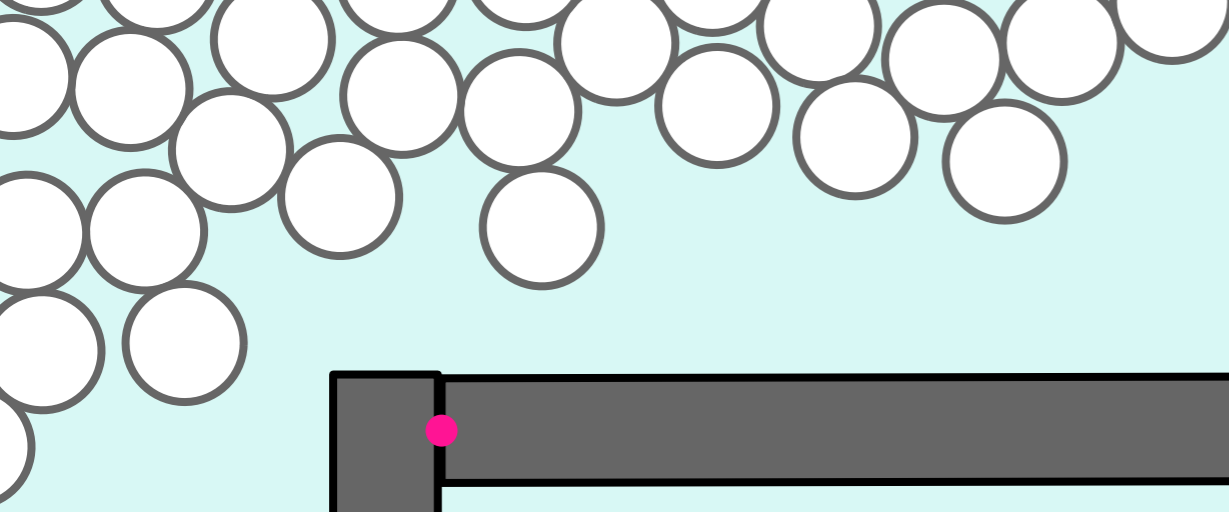


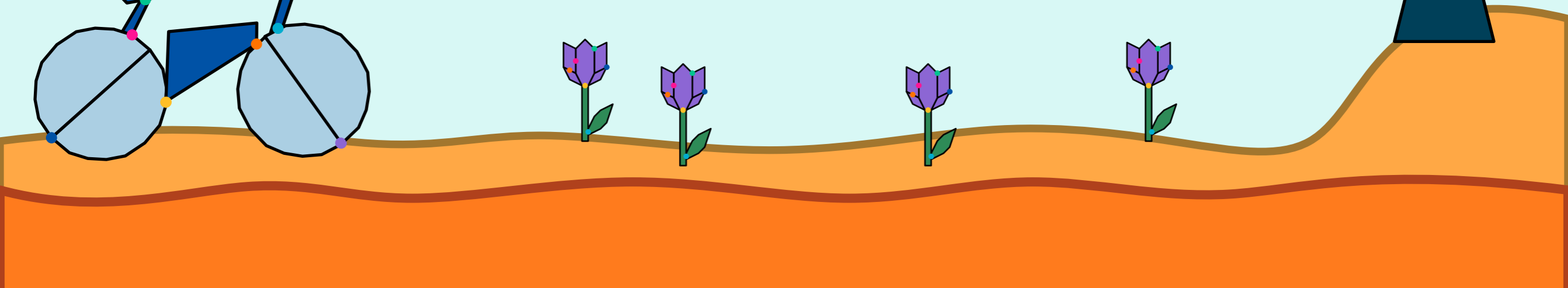
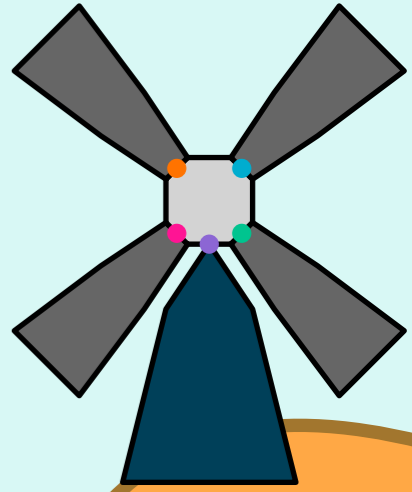
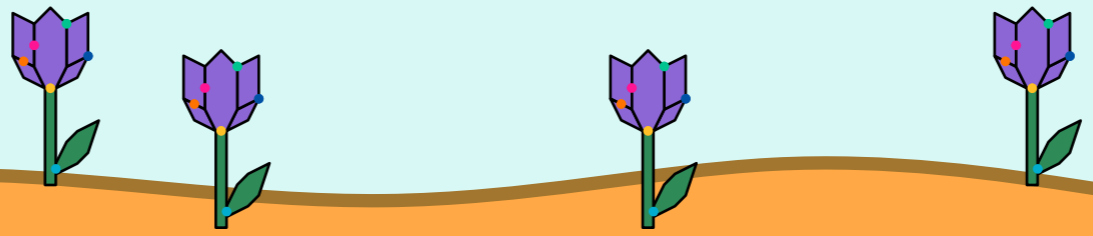
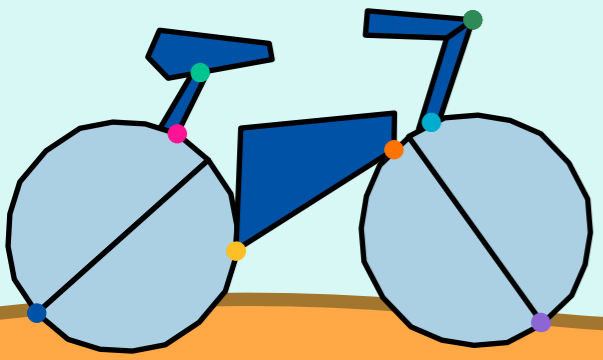
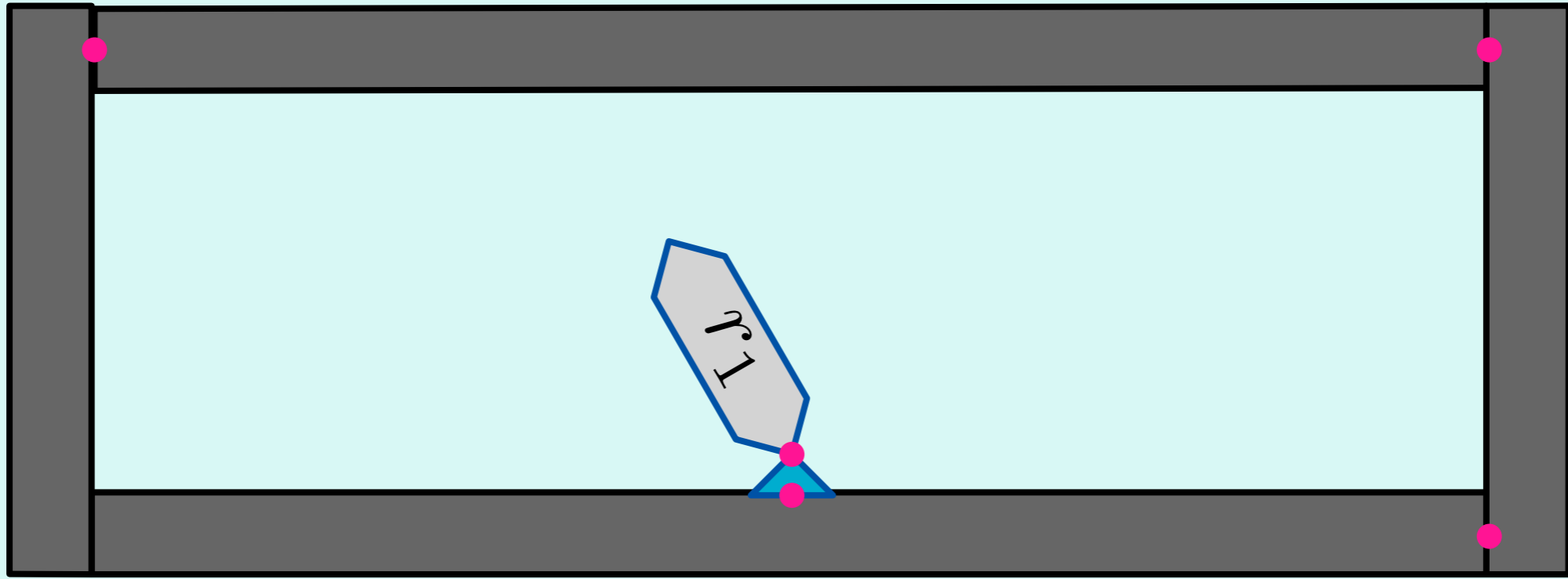
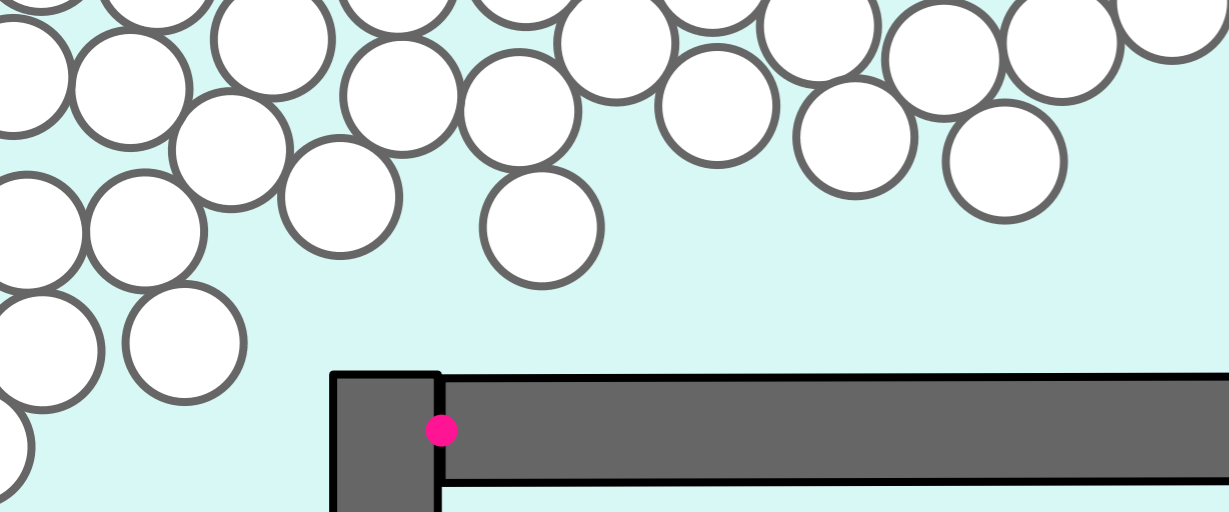


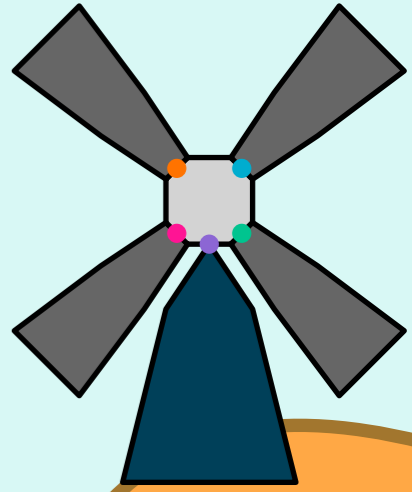
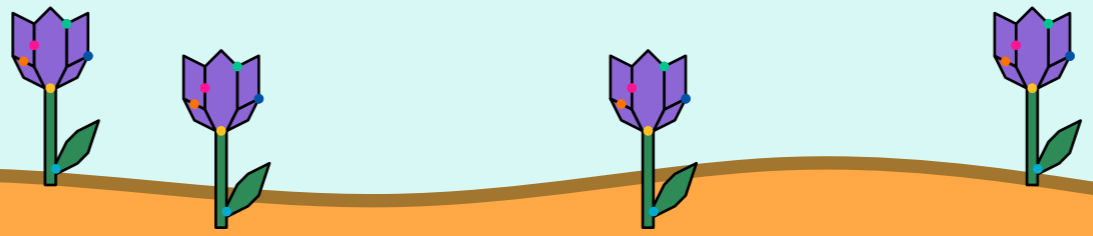
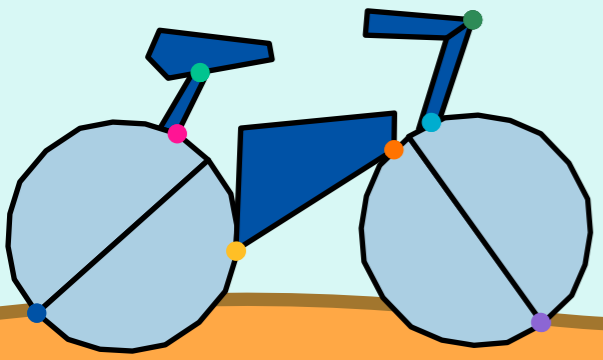
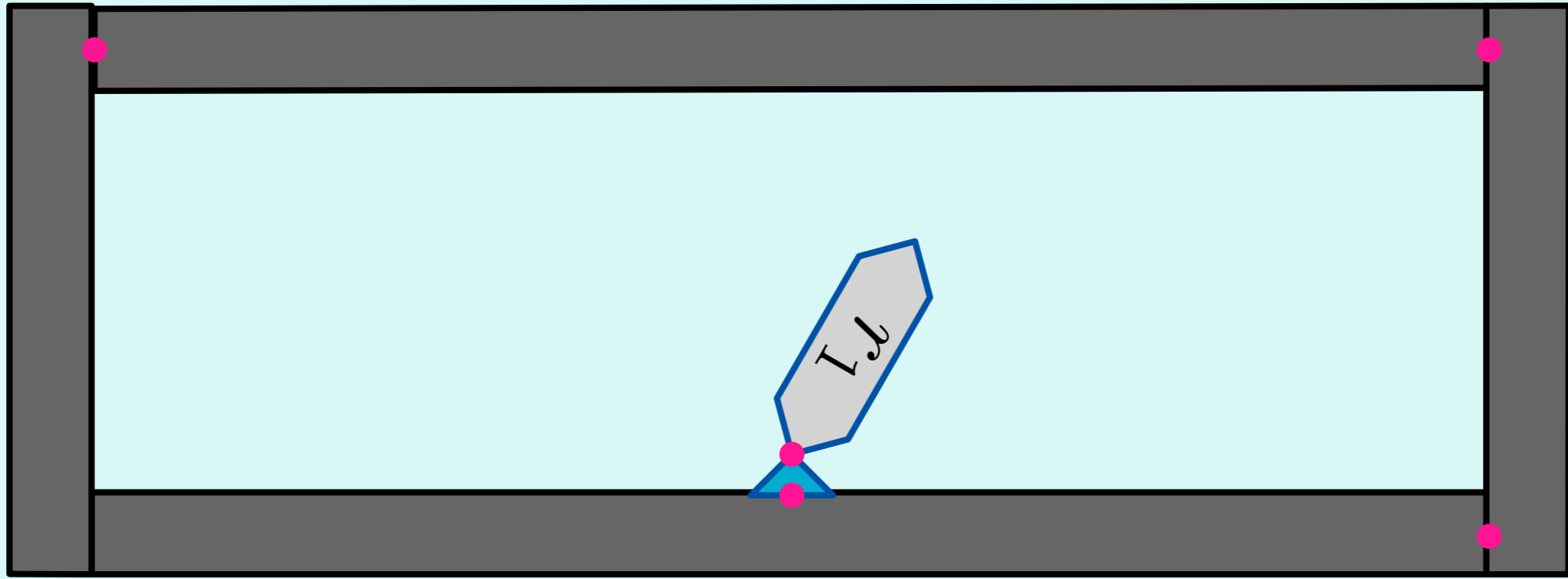
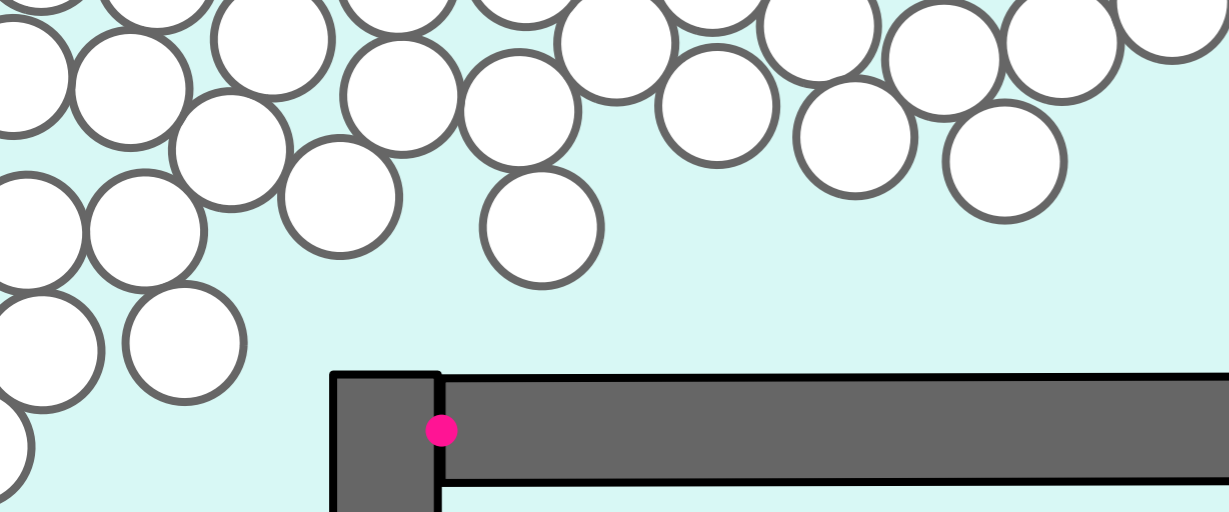


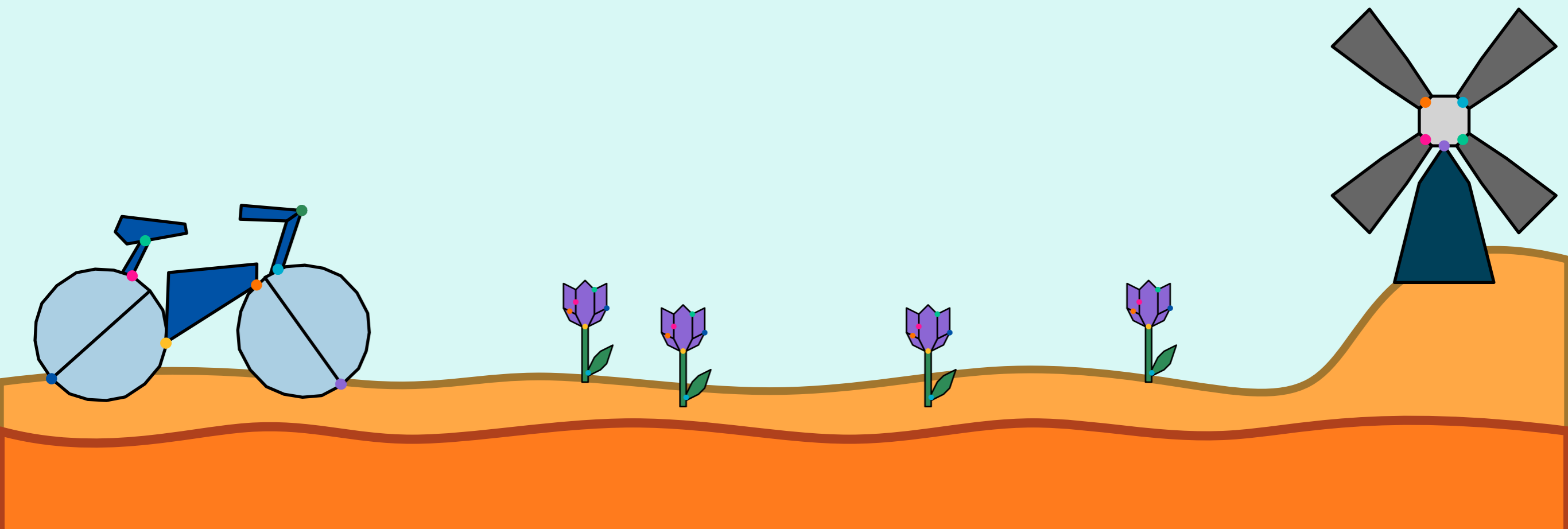
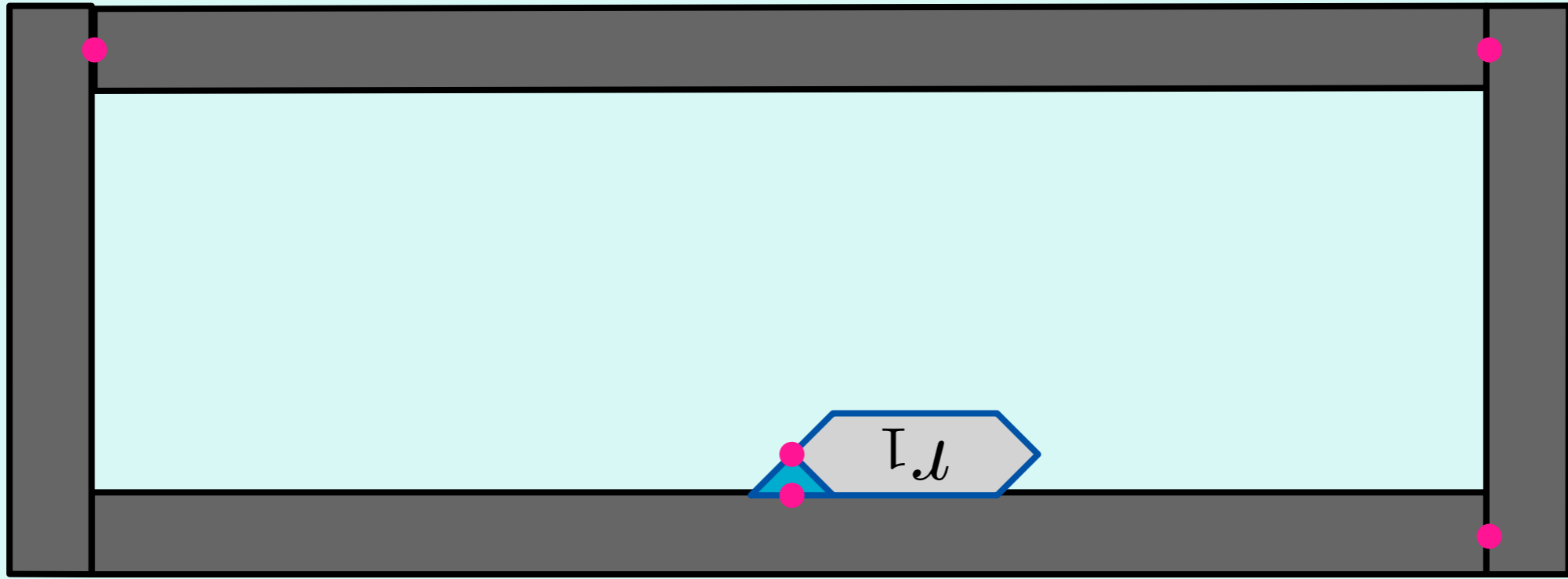
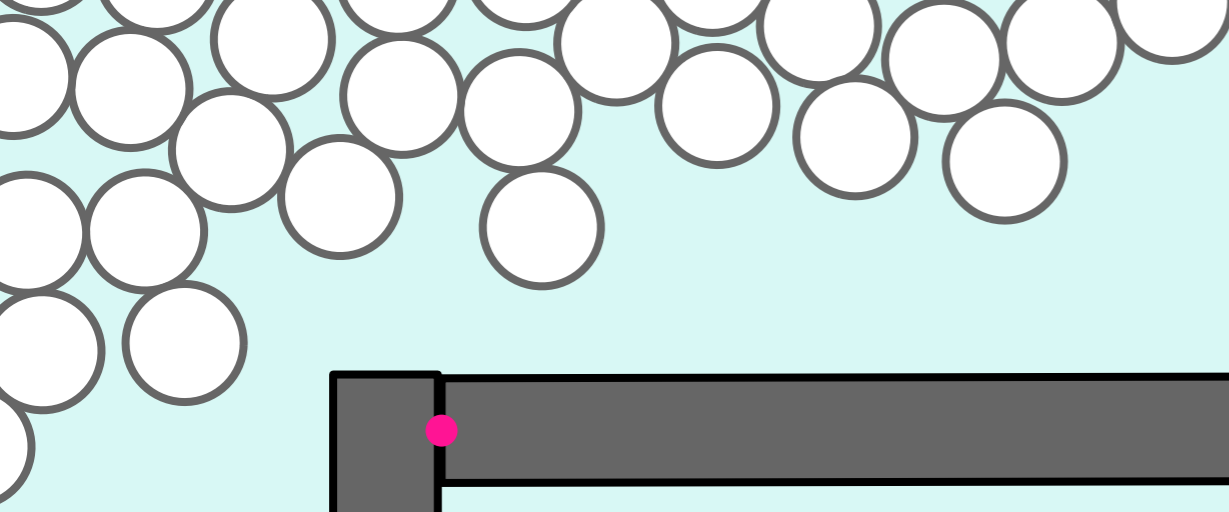


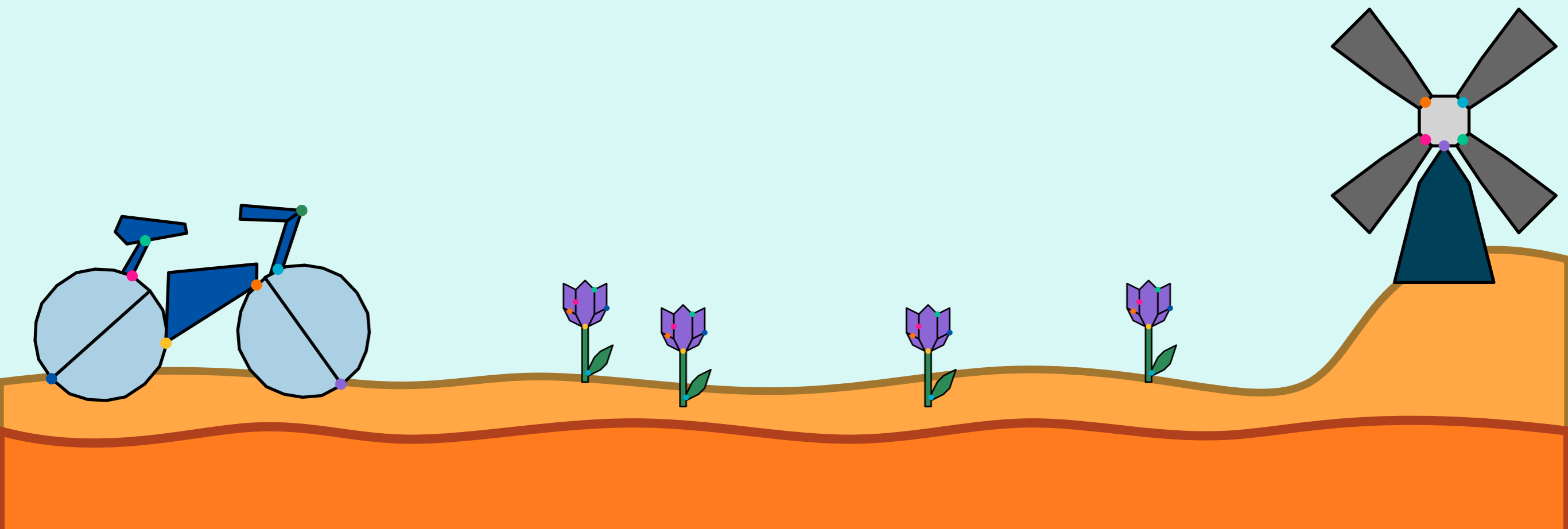
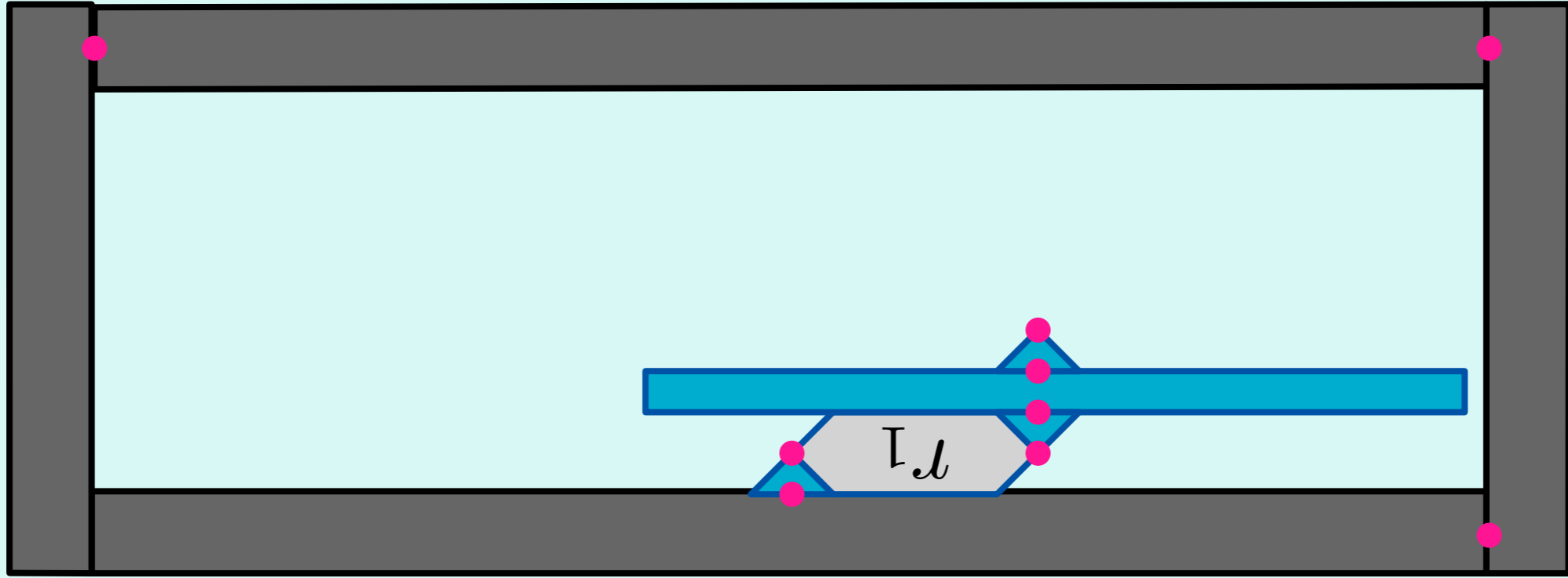
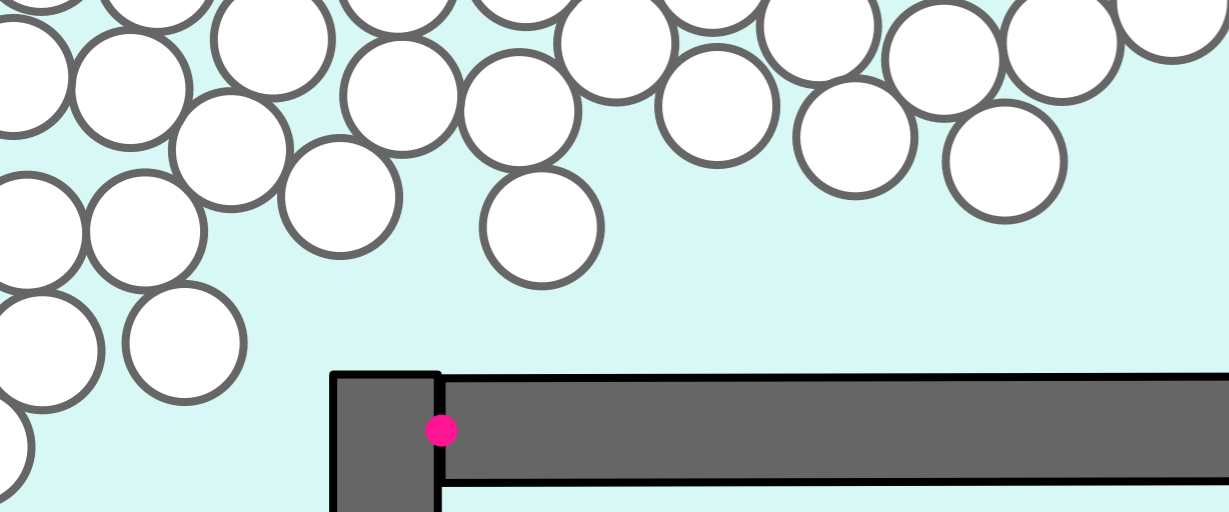


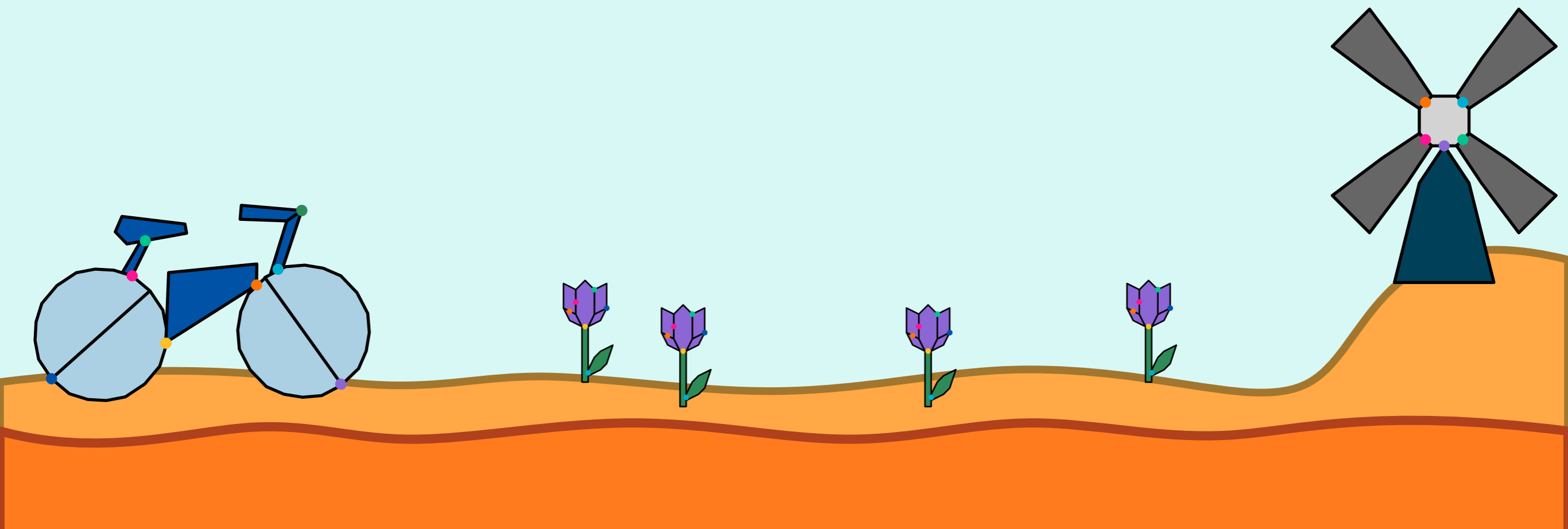
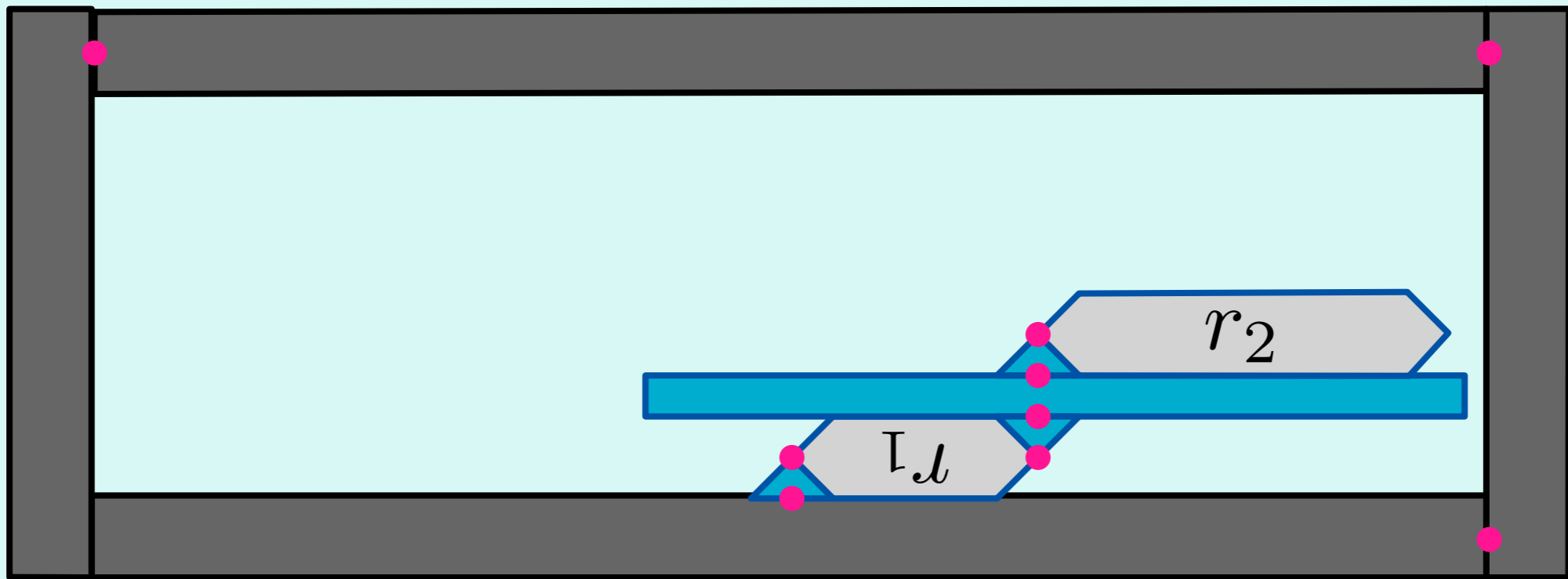
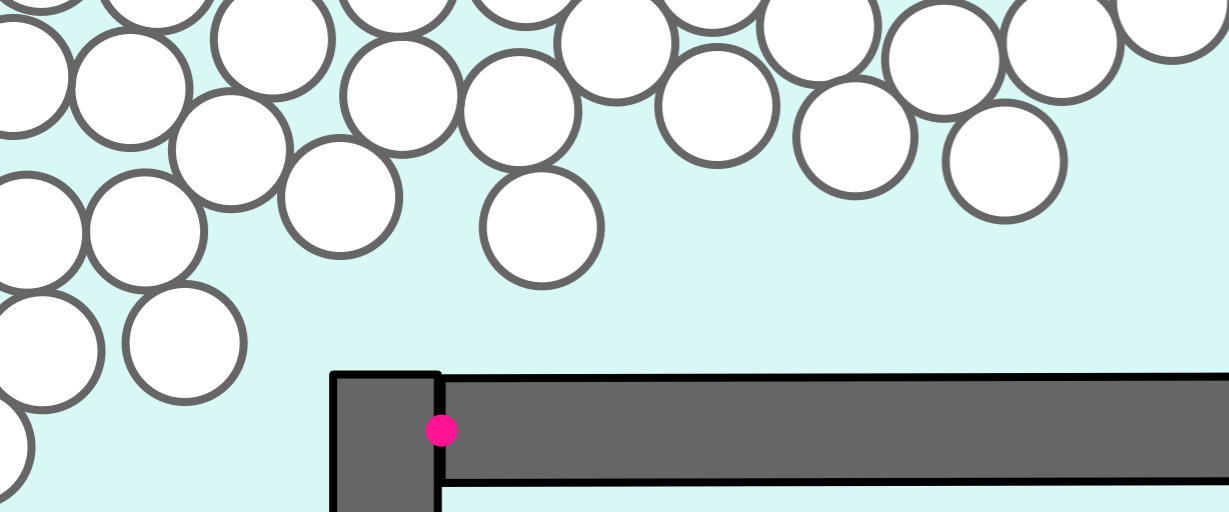


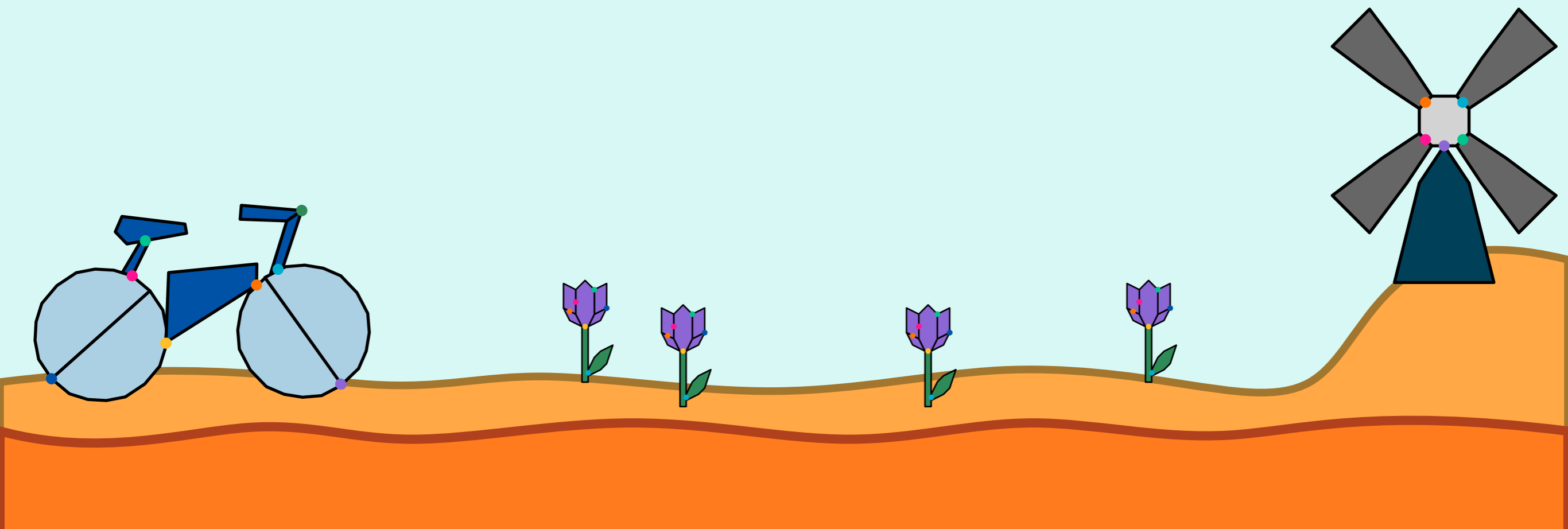
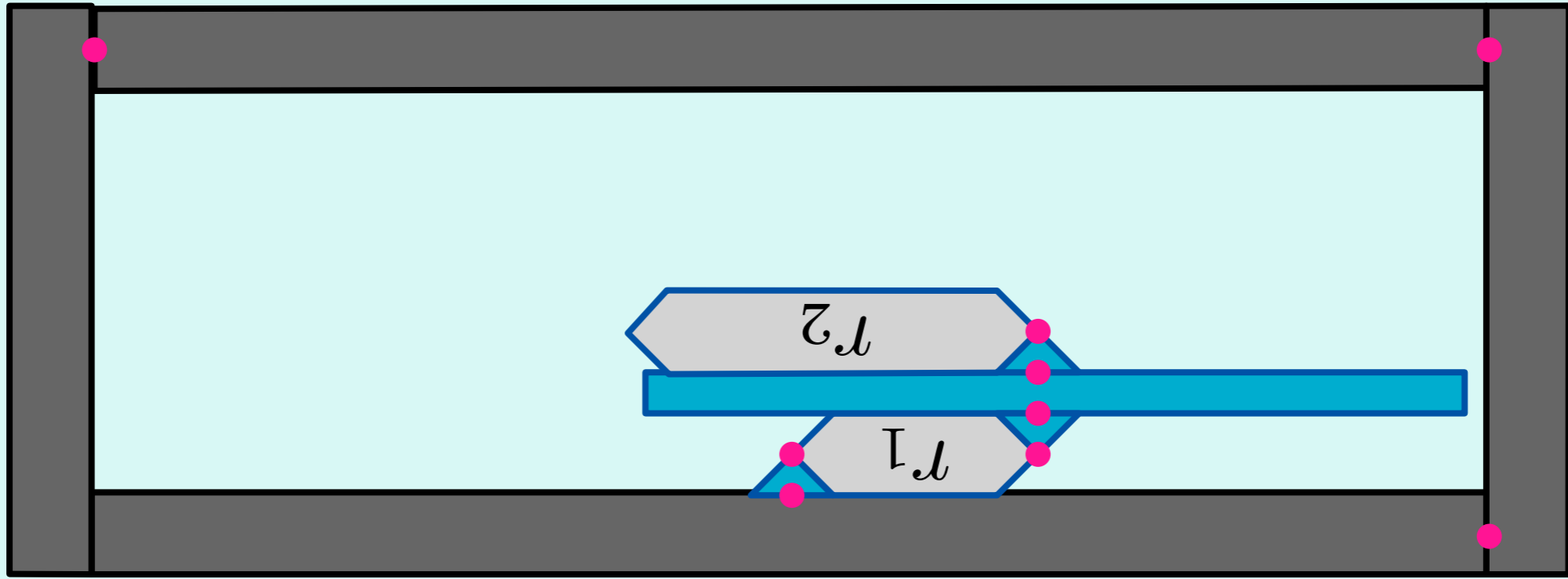
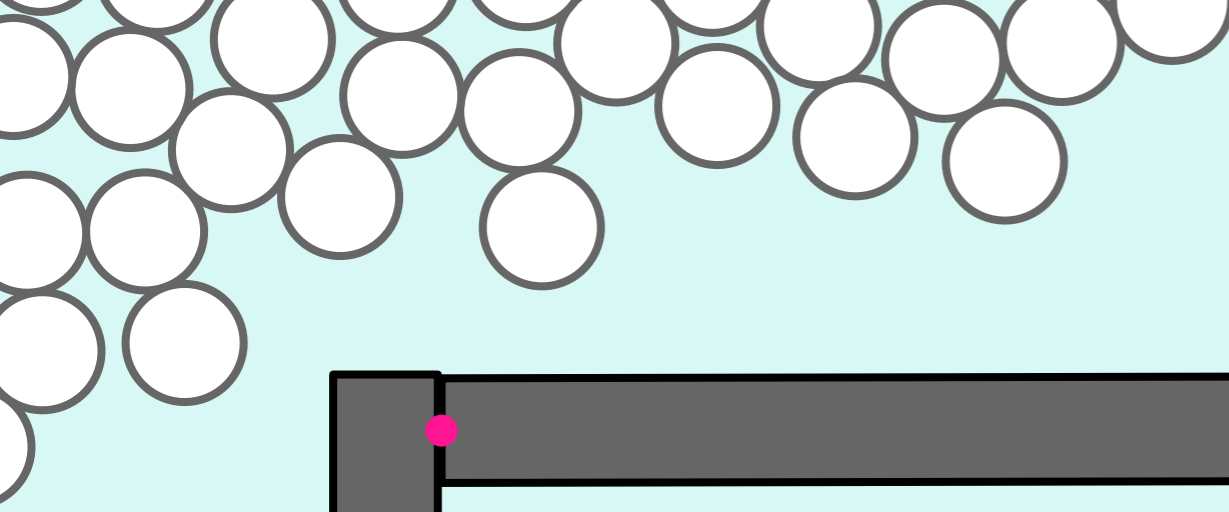


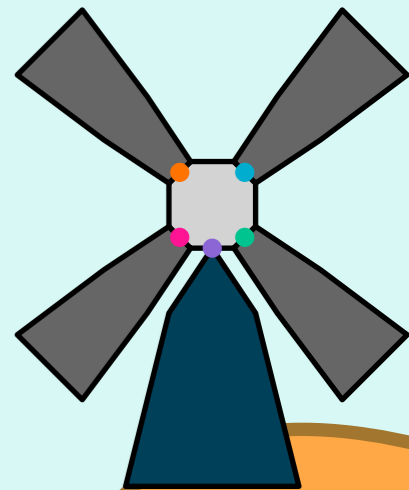
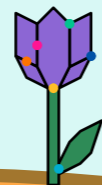
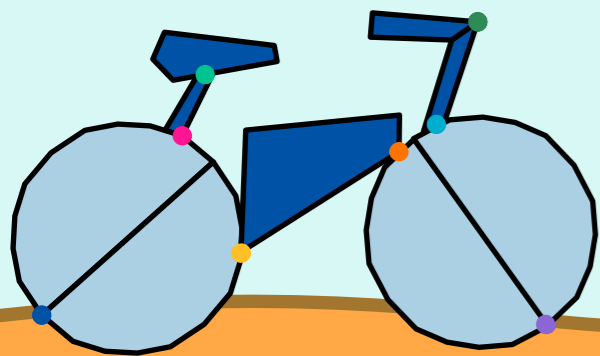
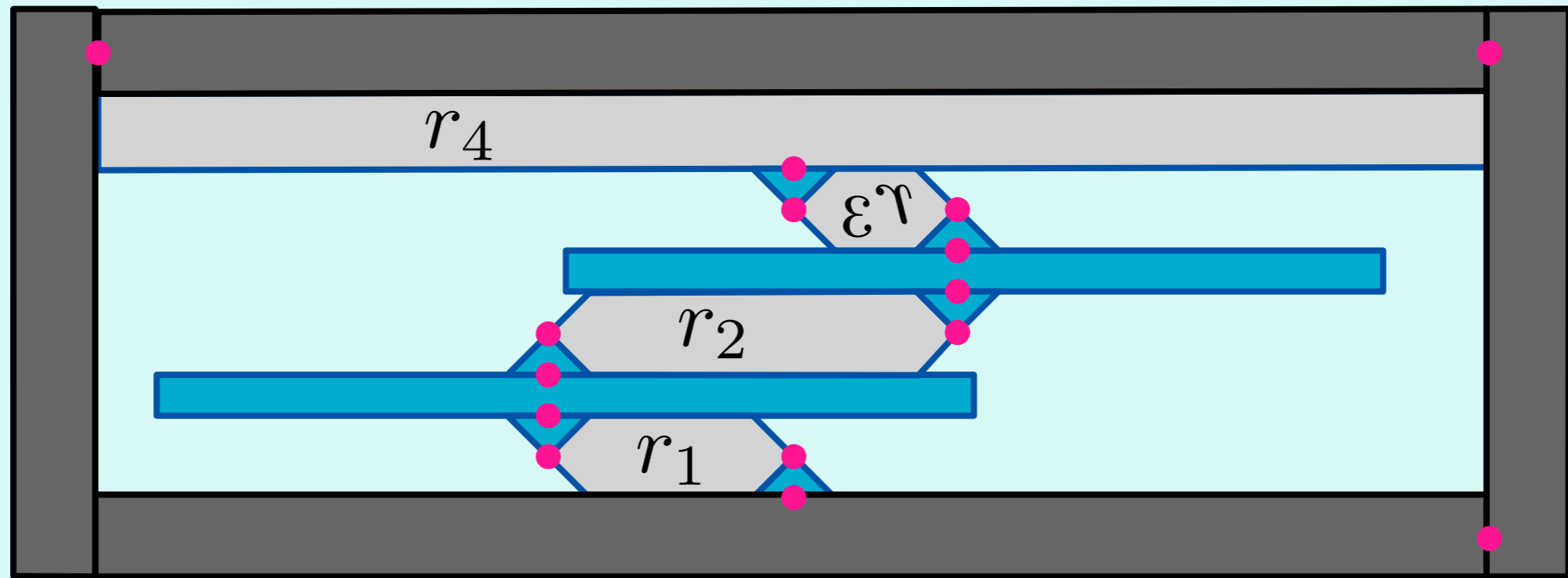
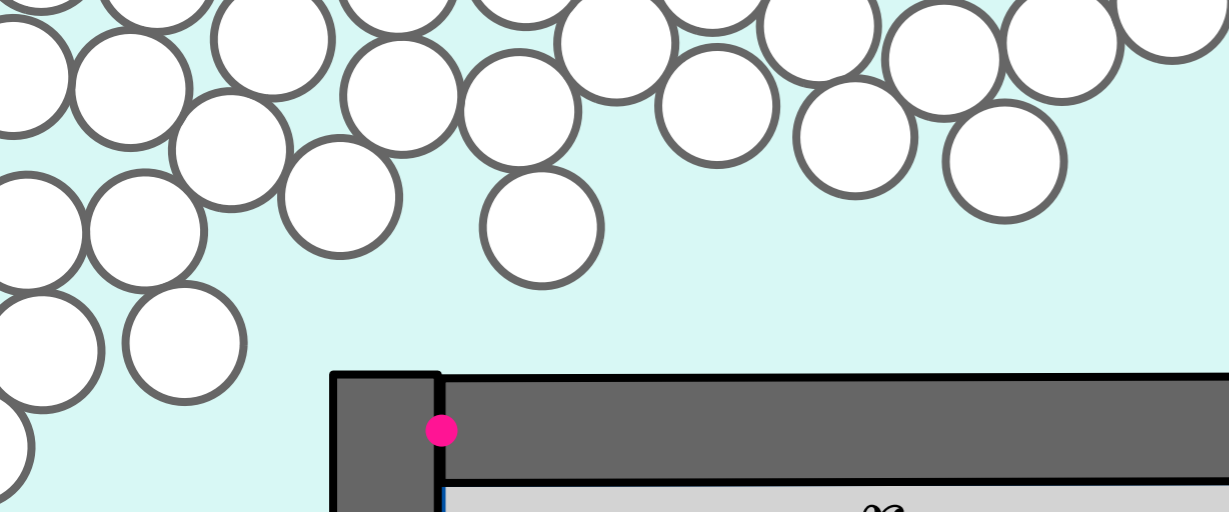


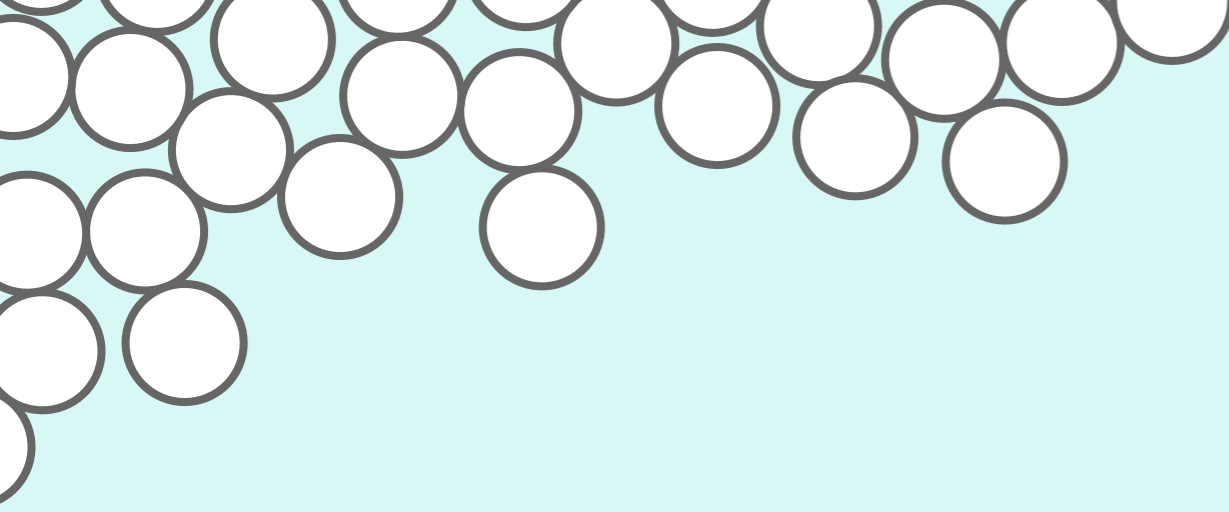




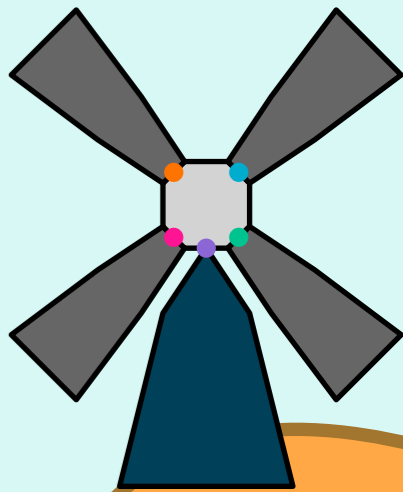
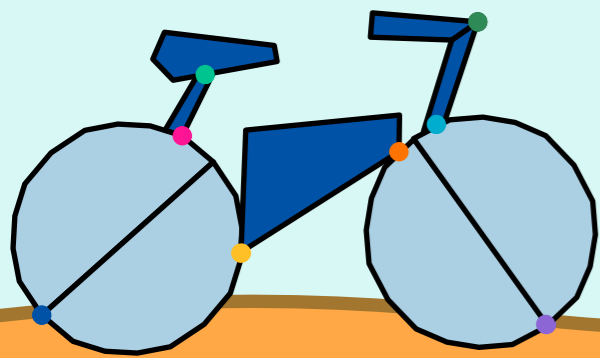


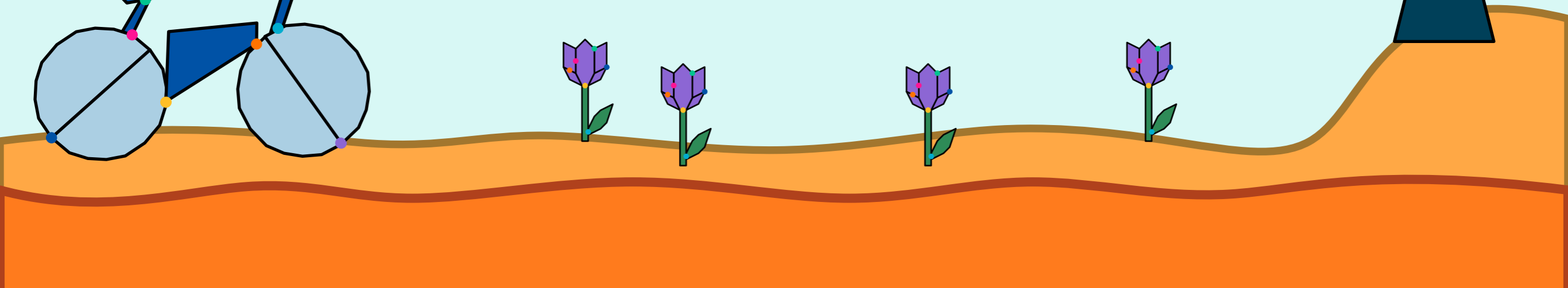
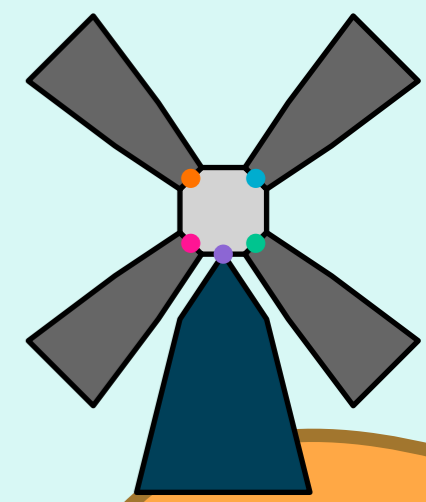
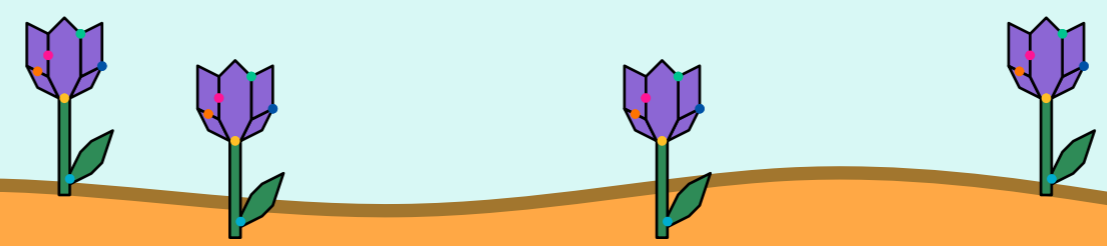
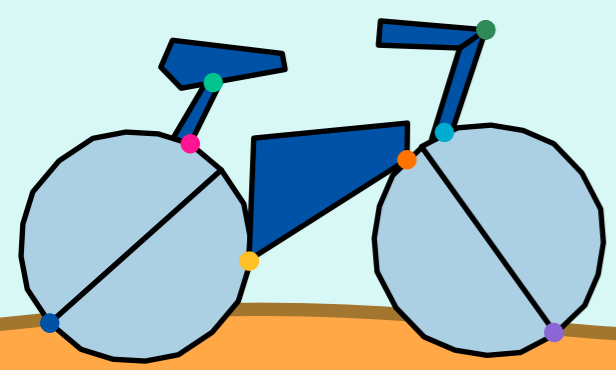
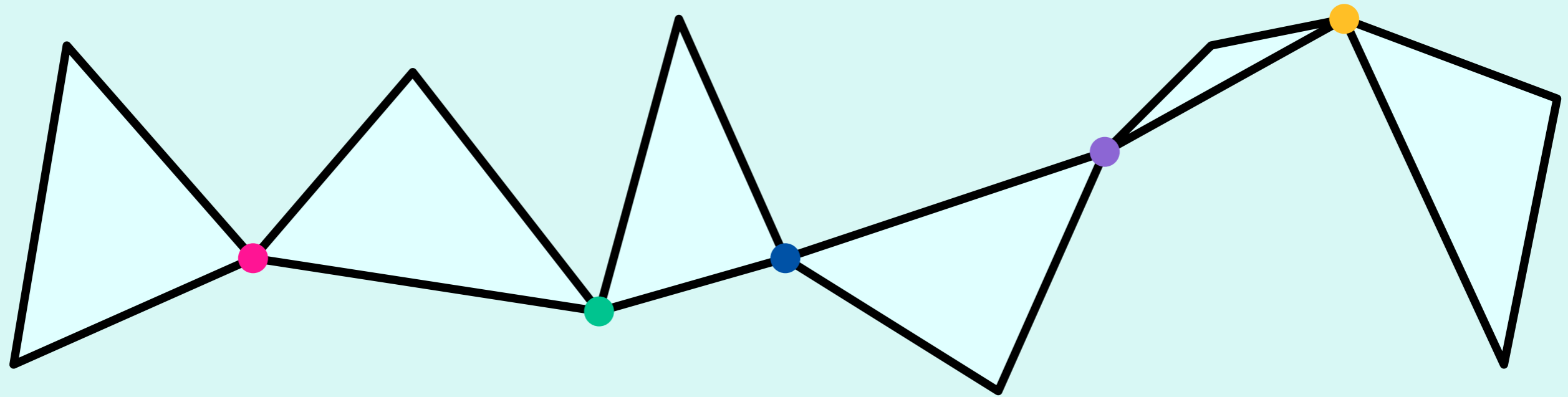
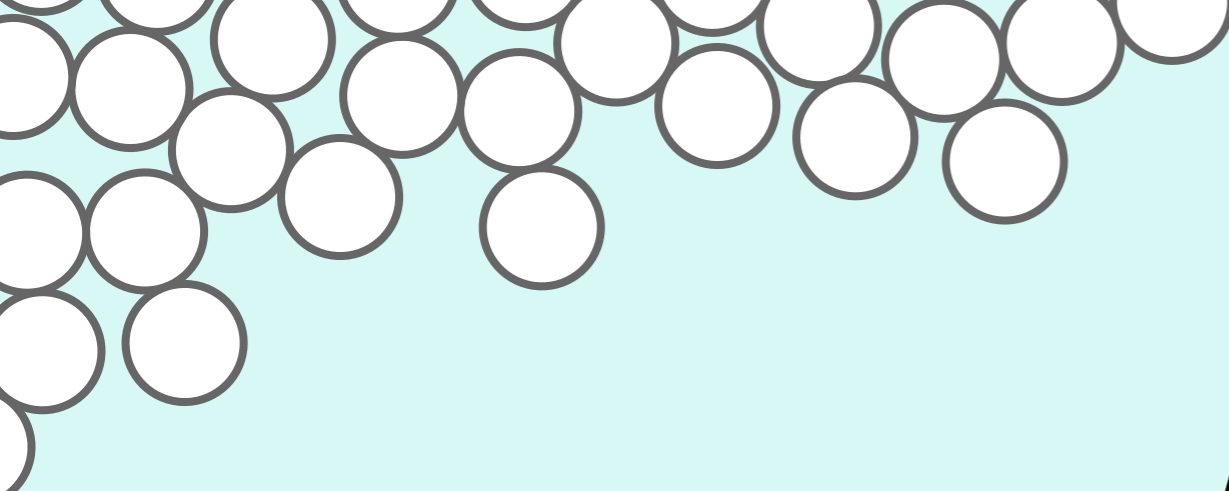


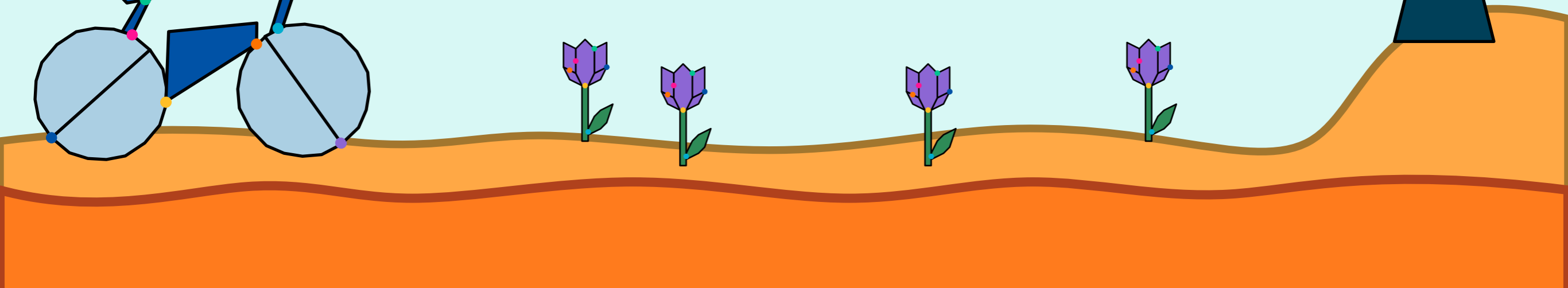
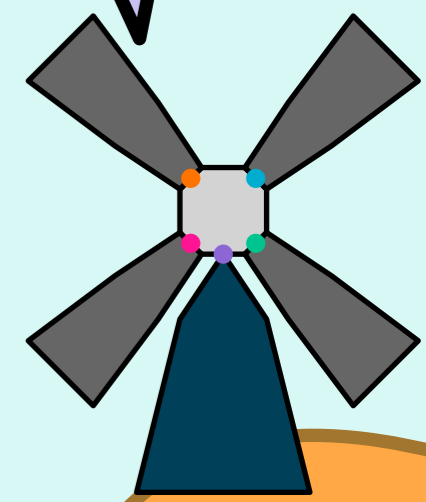
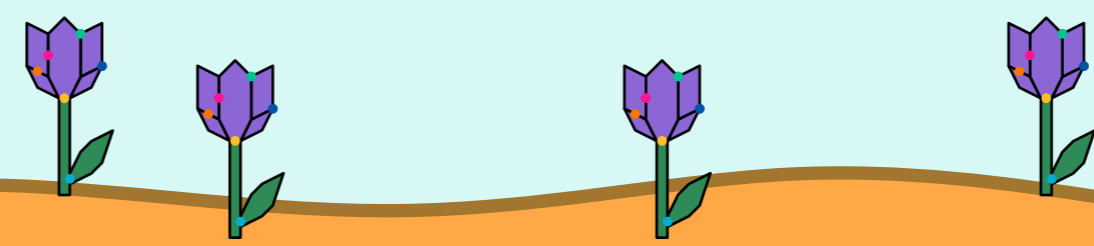
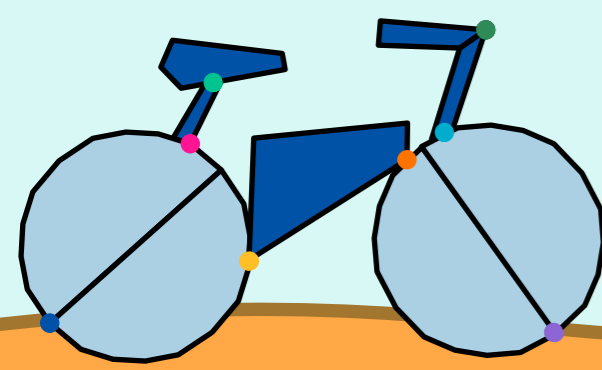
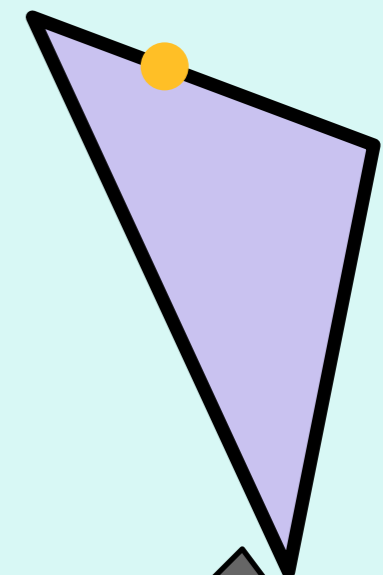
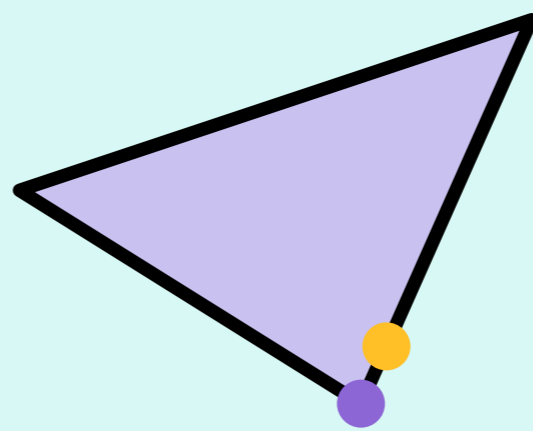
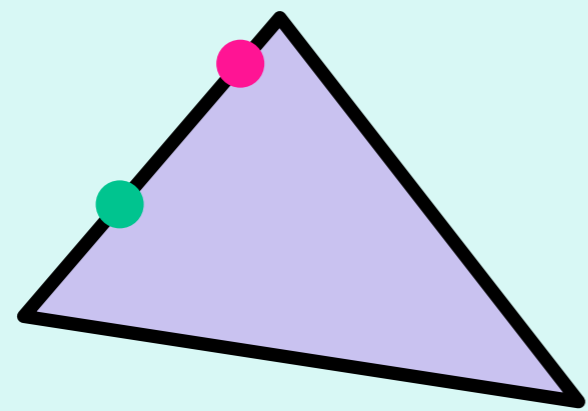
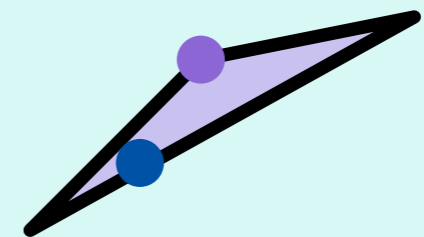
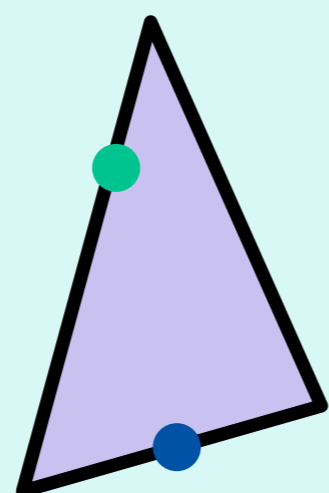
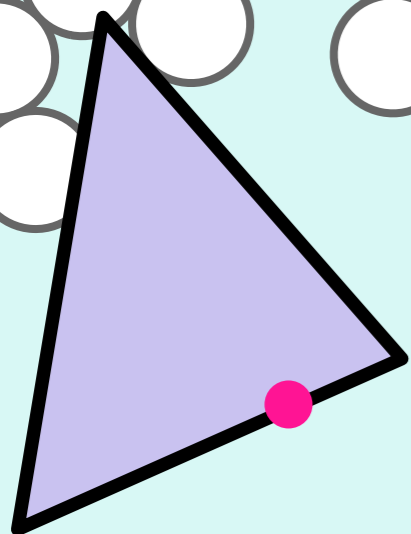
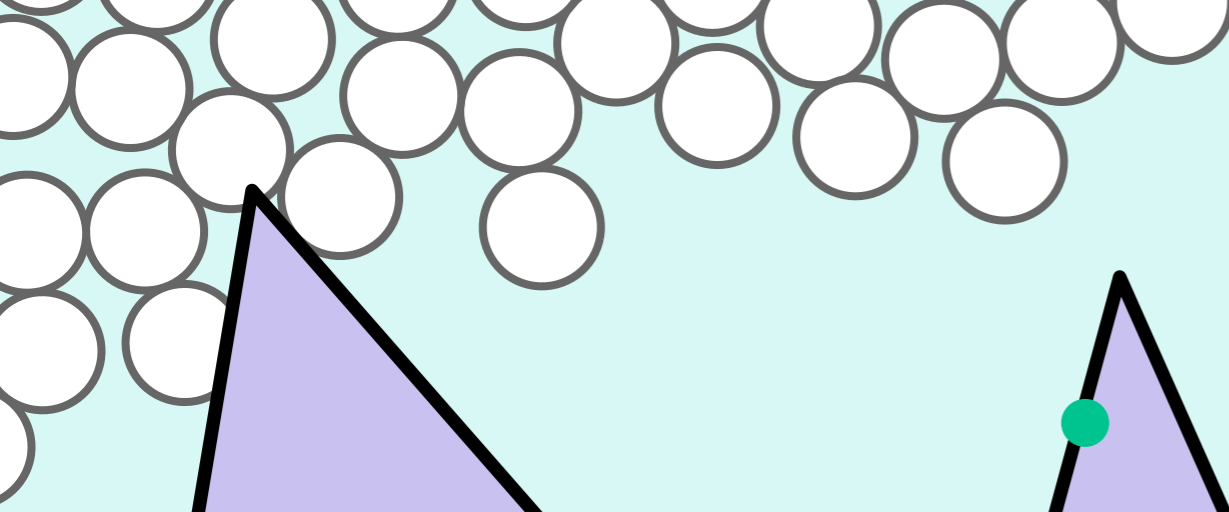


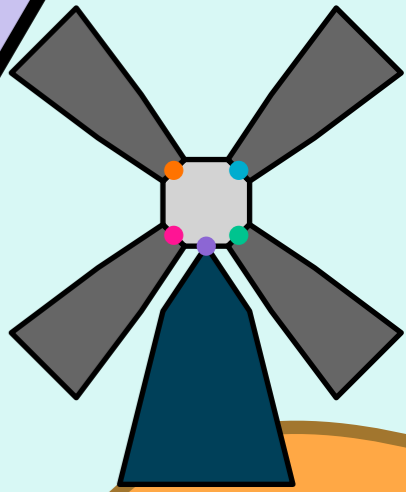
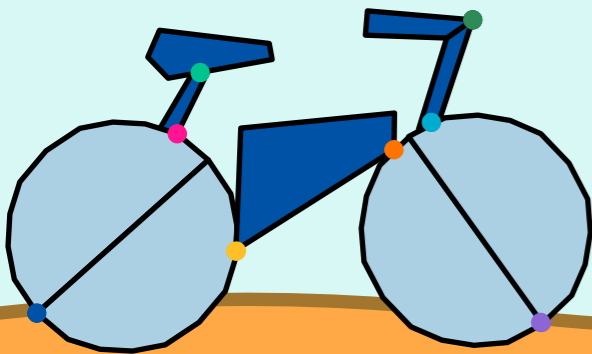
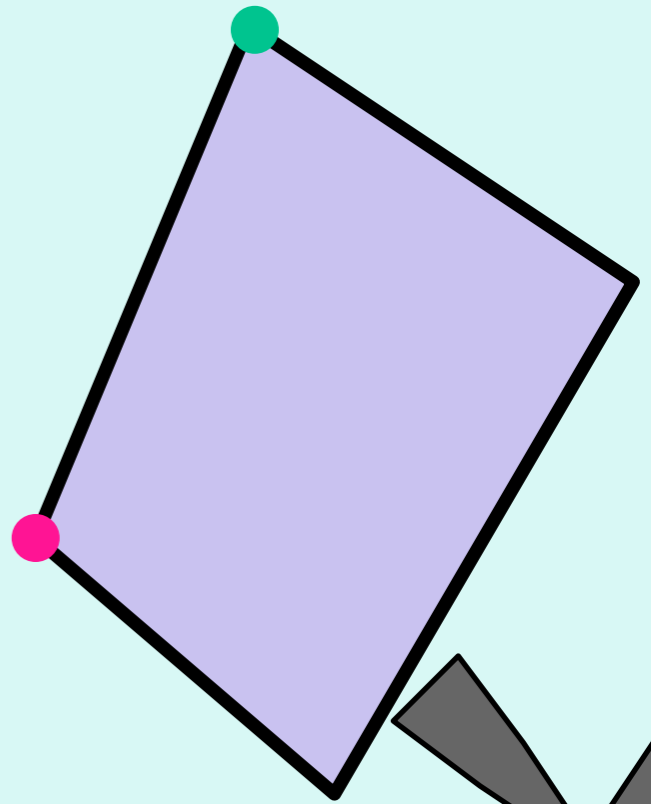
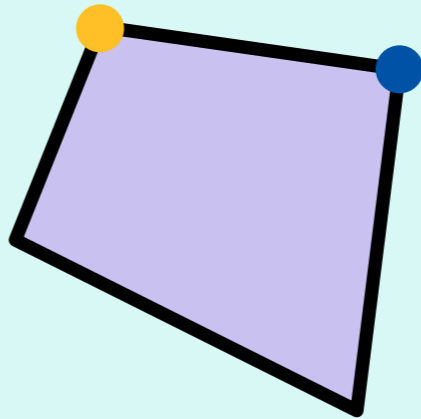
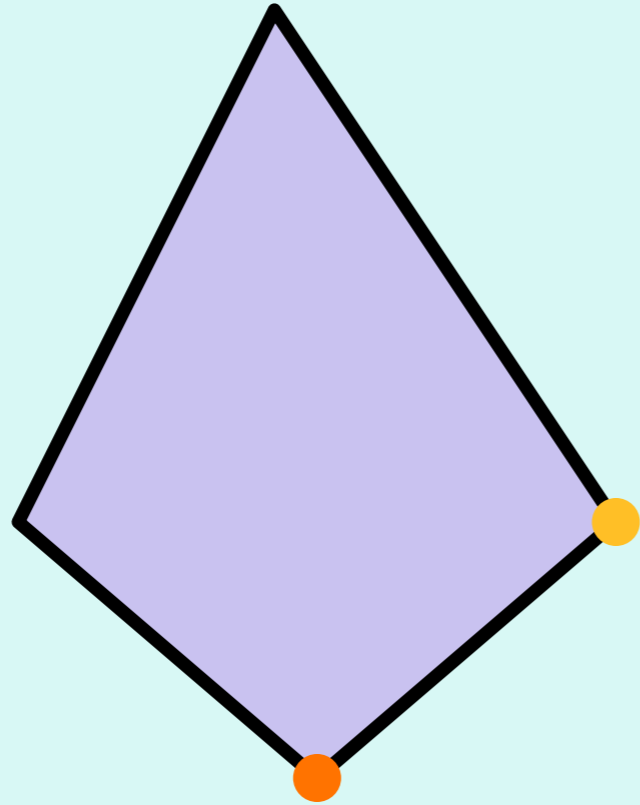
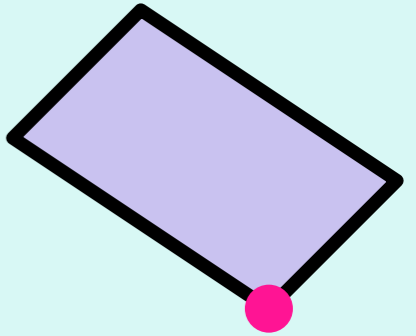
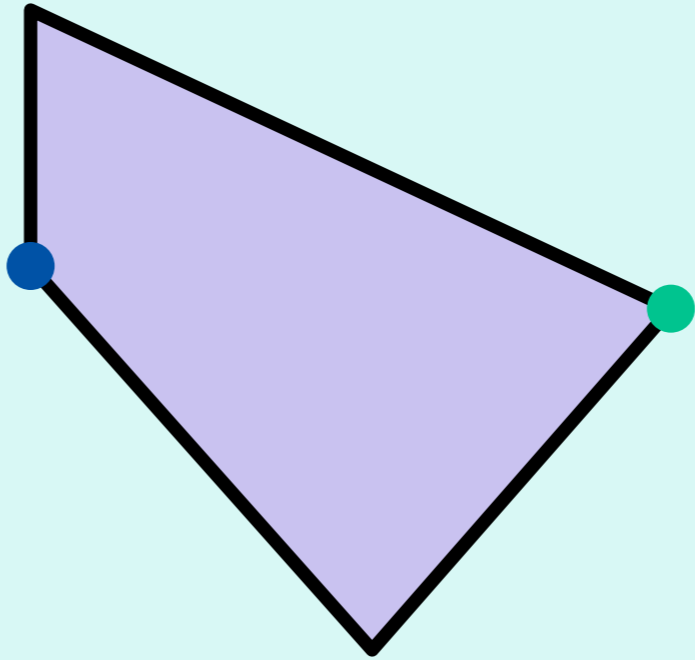
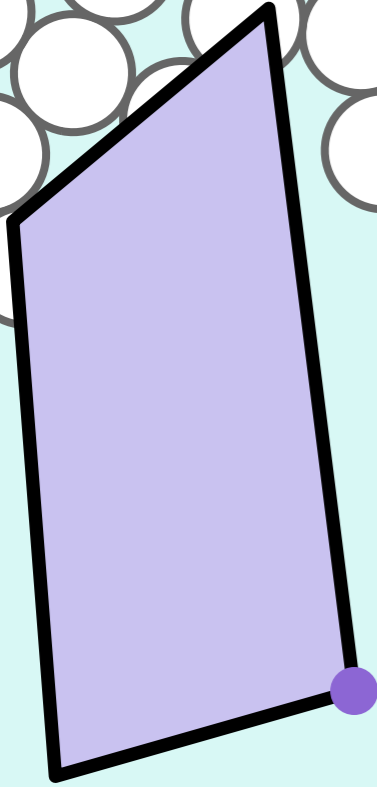
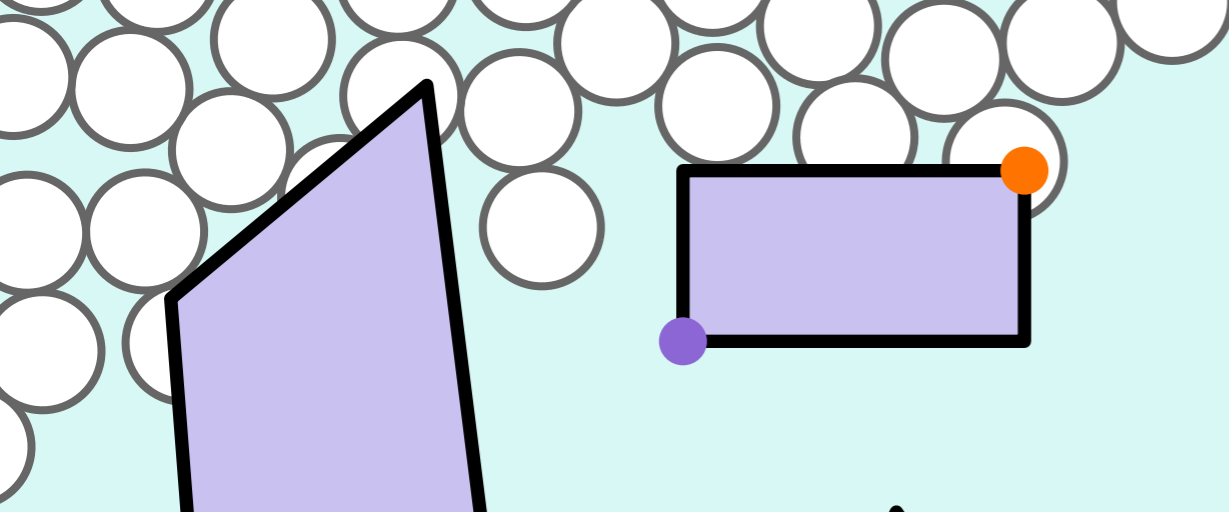


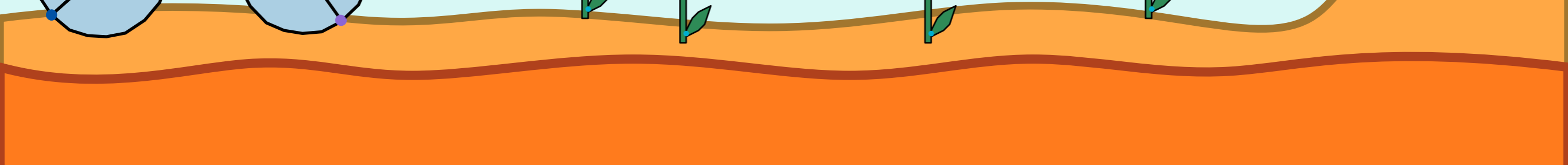
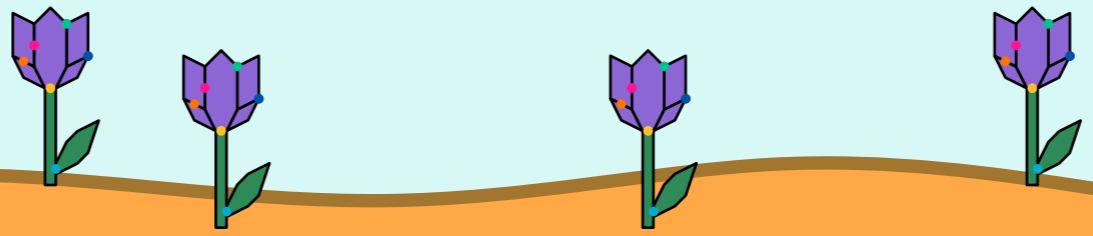
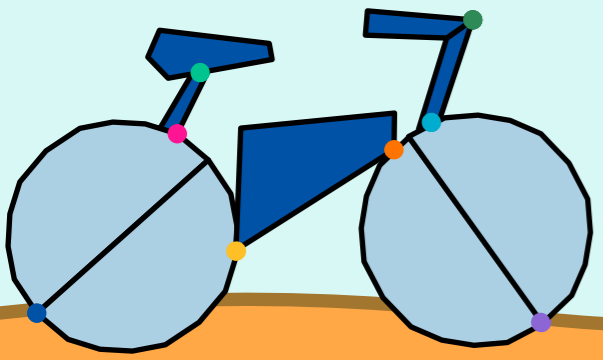
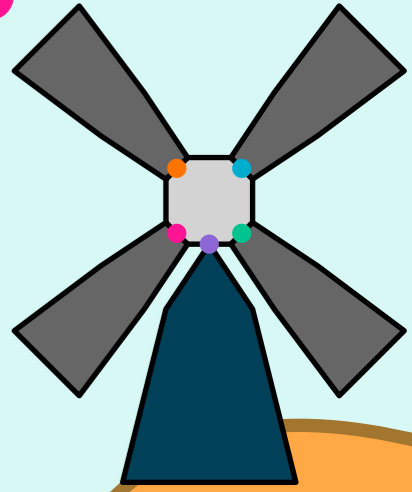
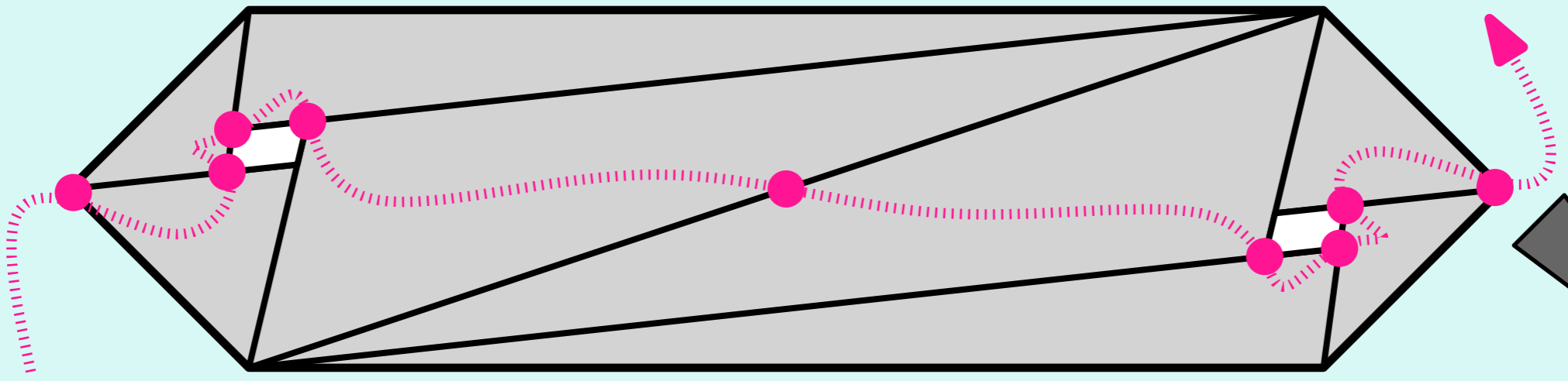
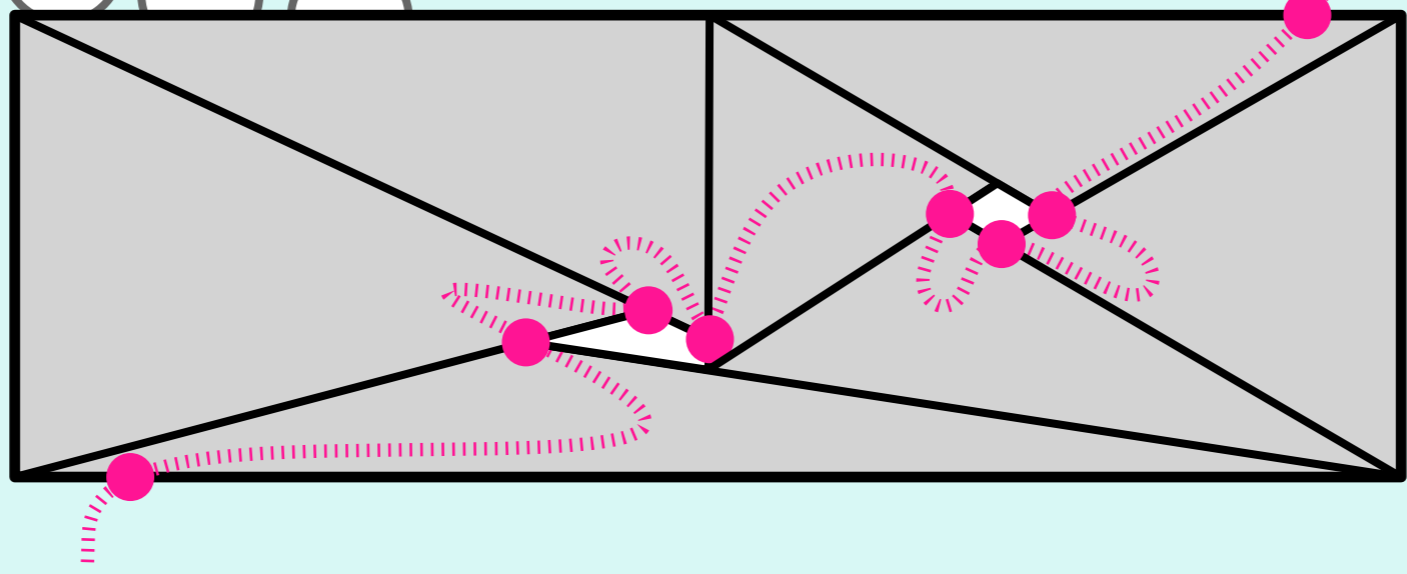
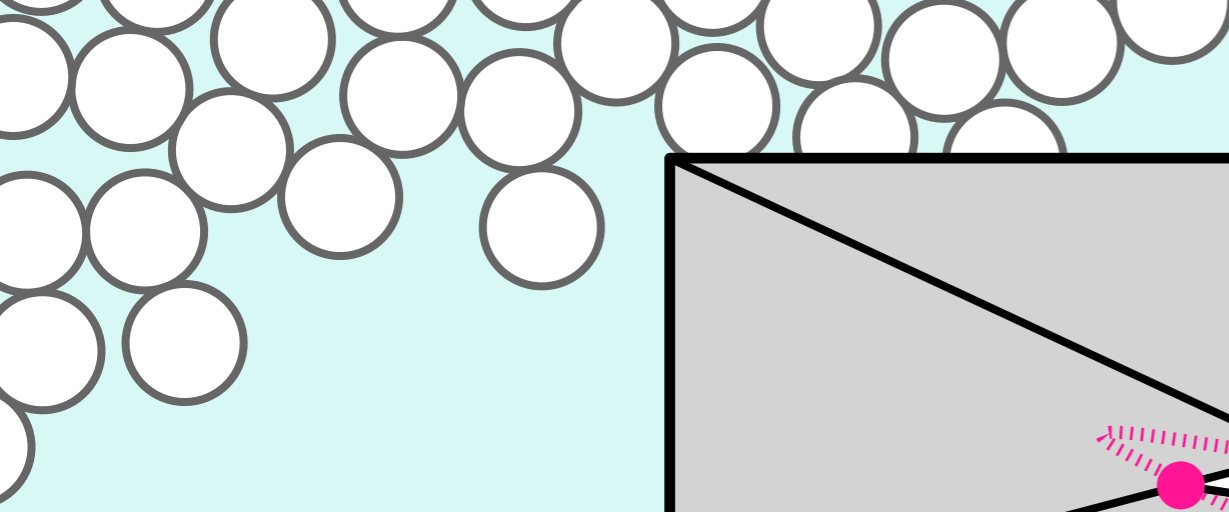
so what makes it hard?





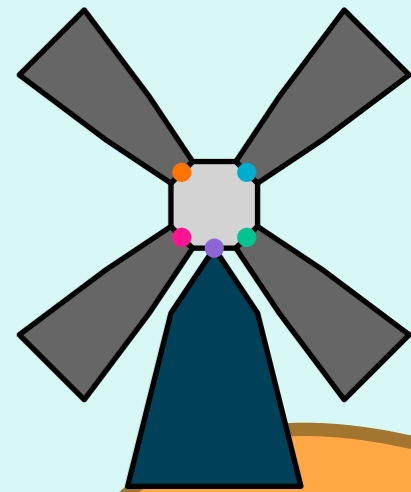
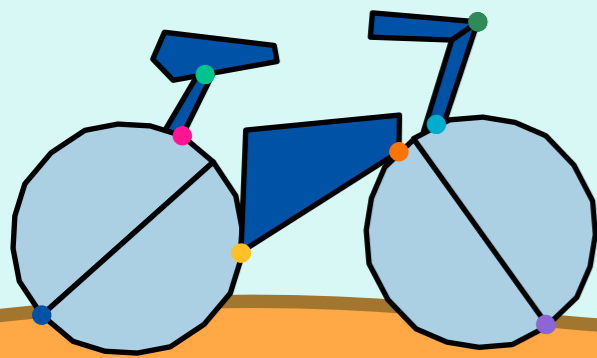


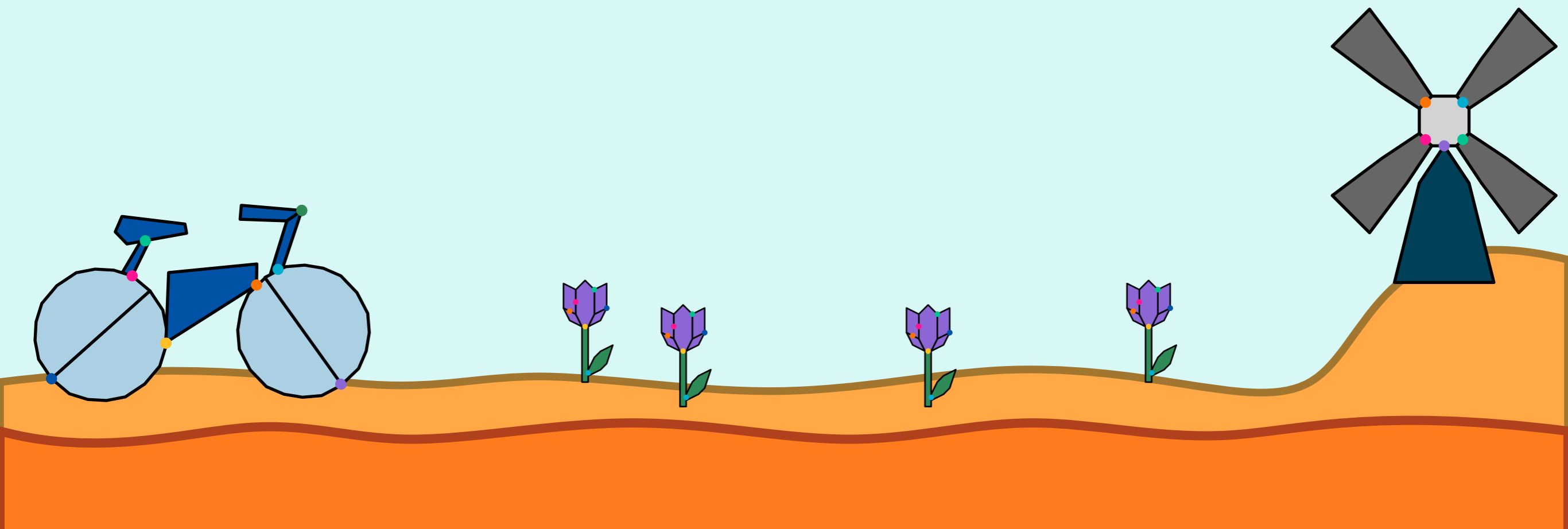
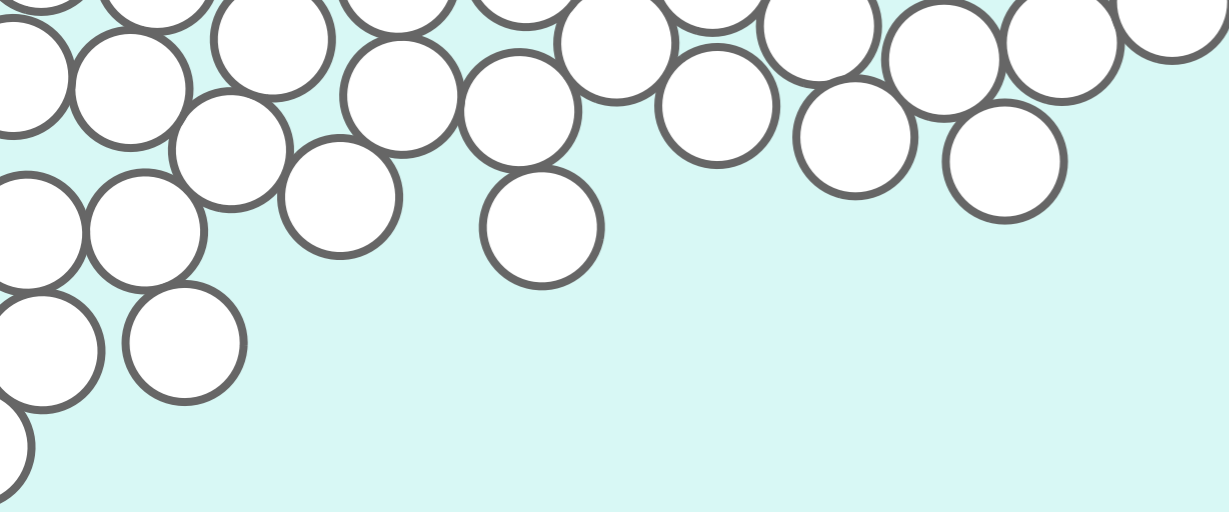


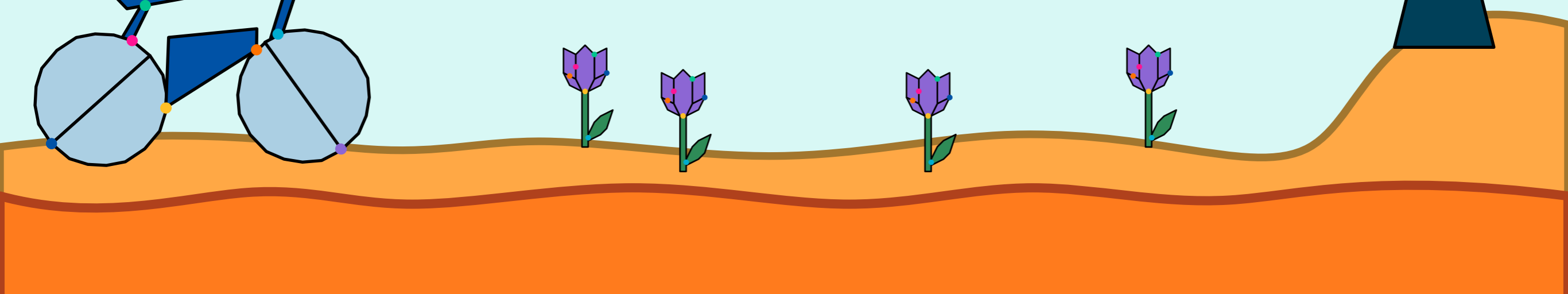
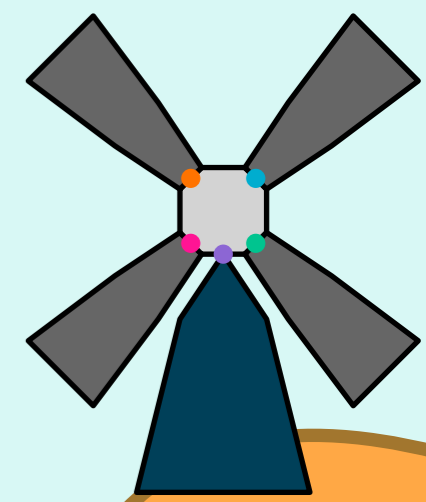
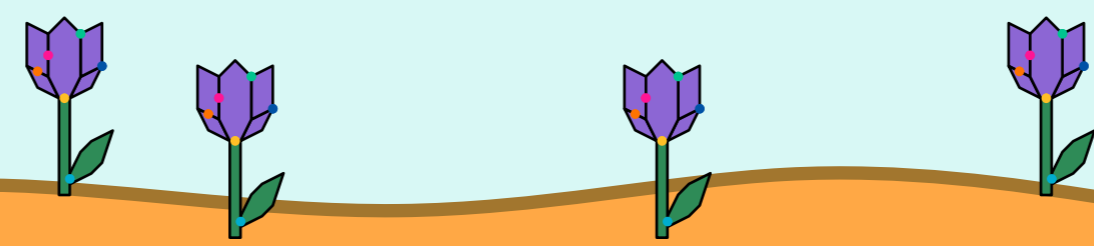
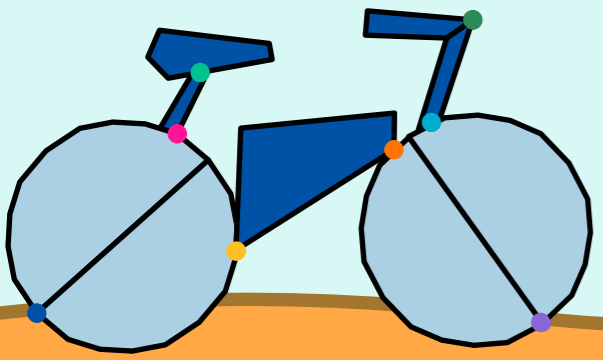
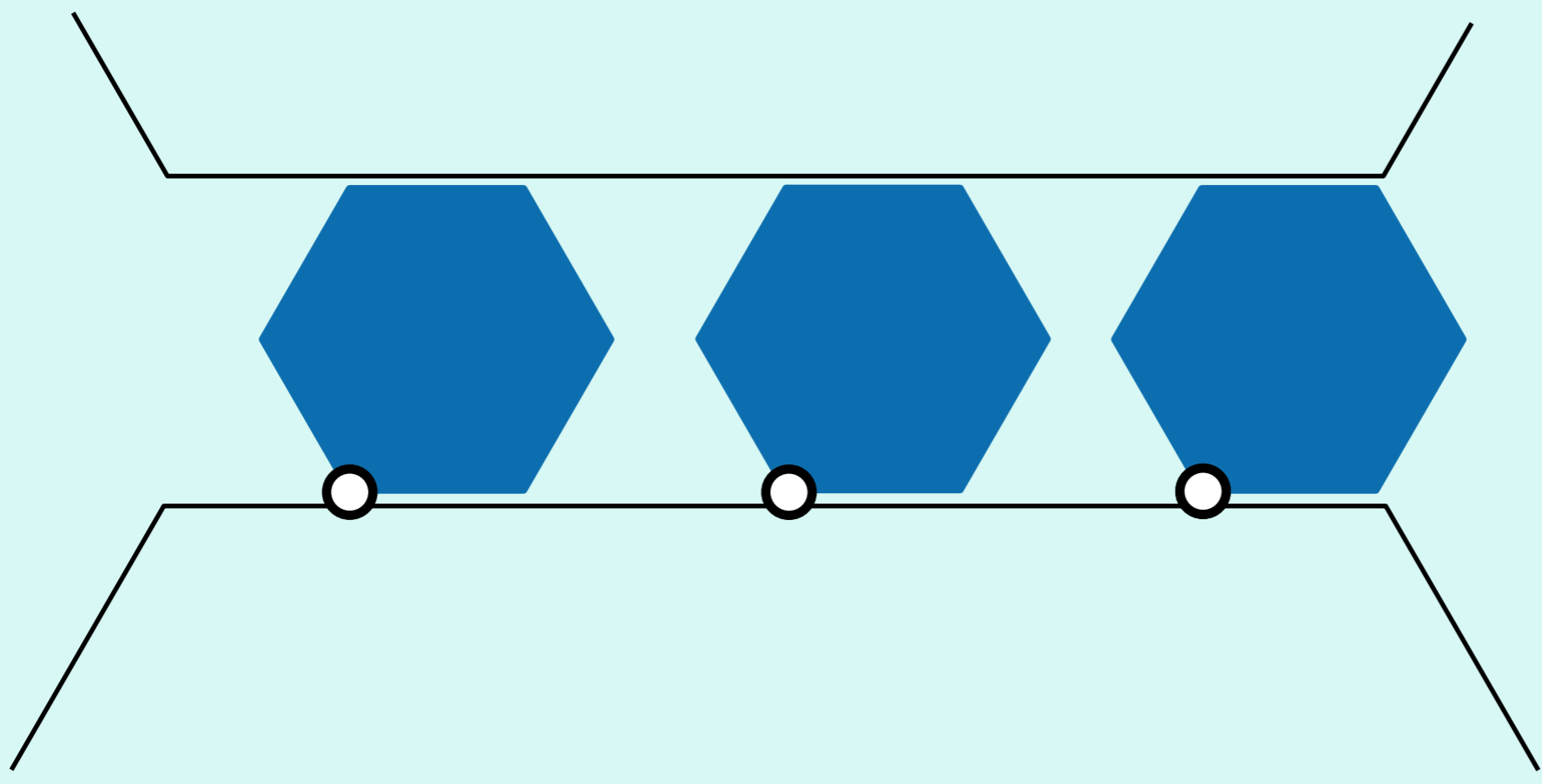
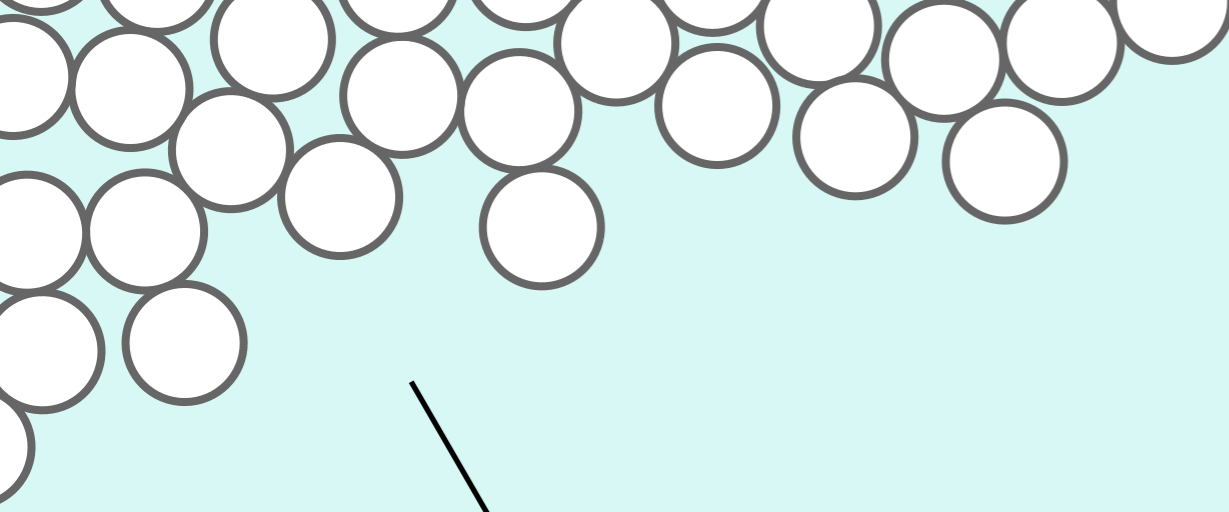


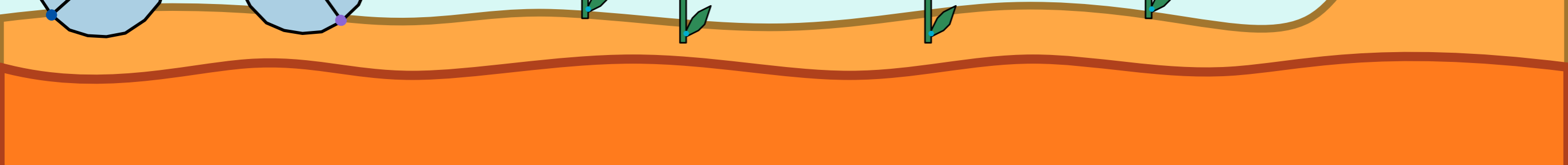
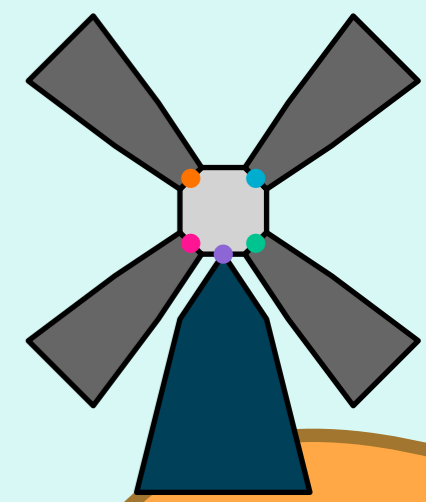
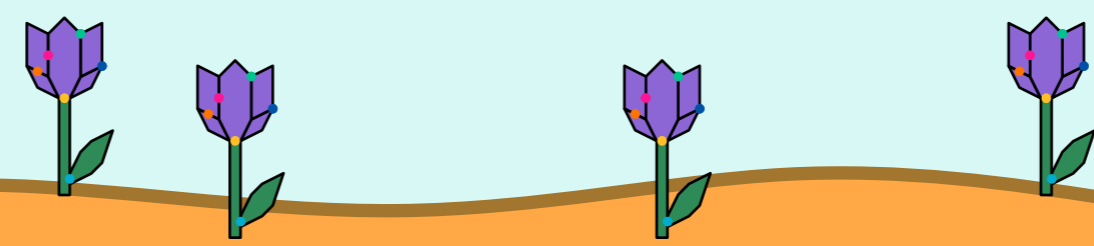
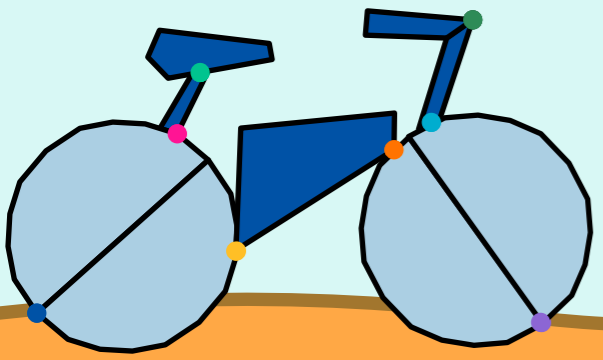
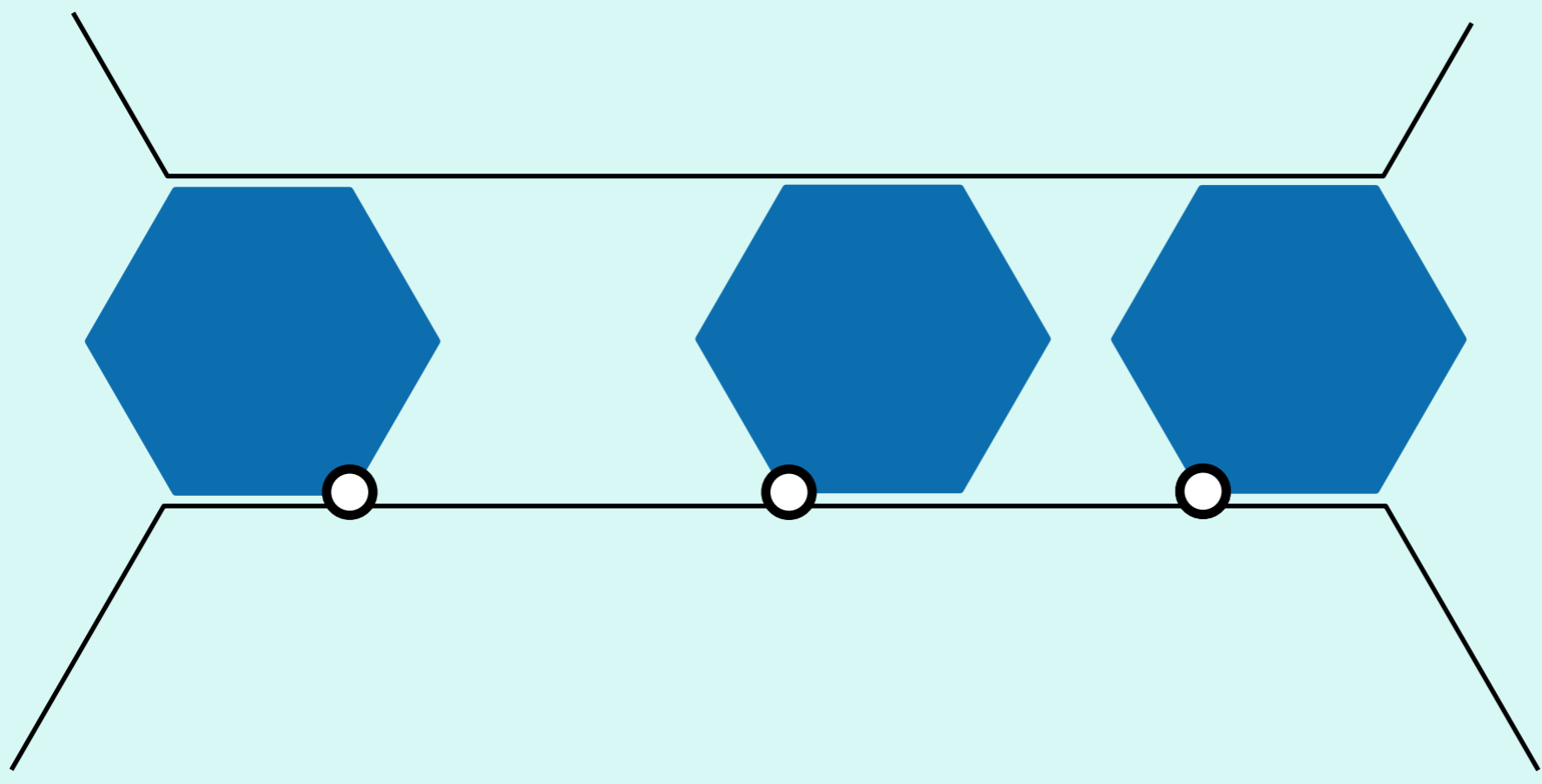
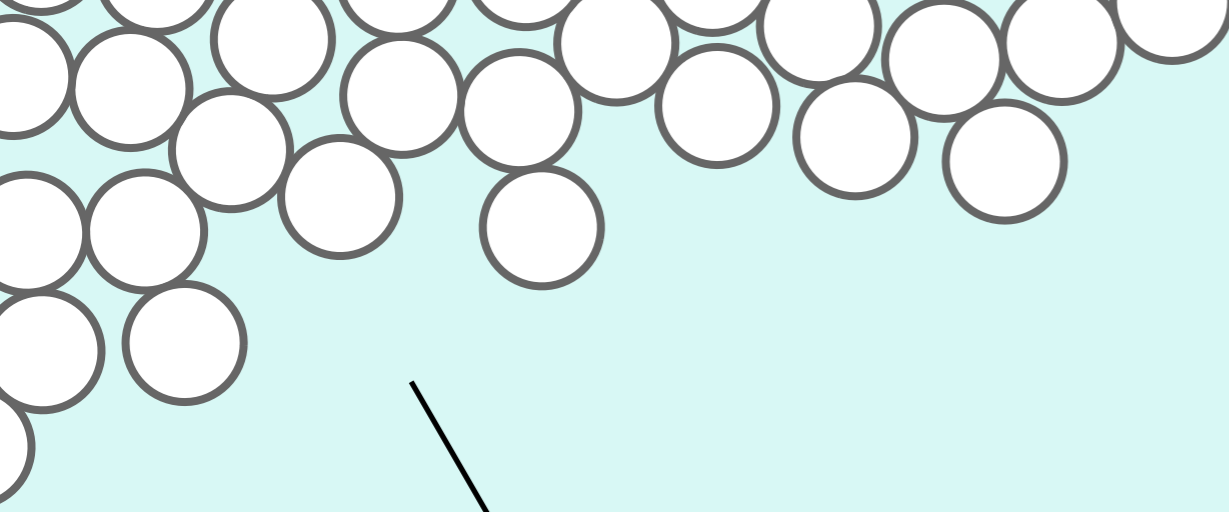


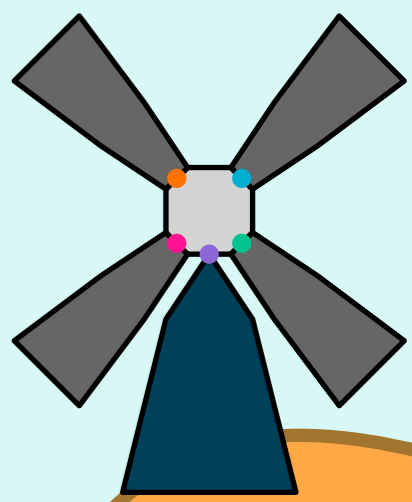
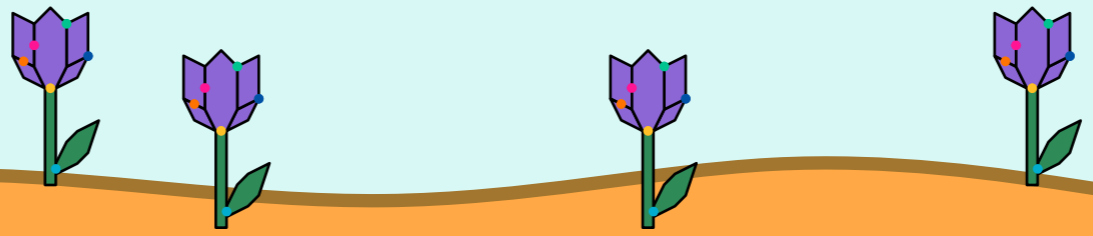
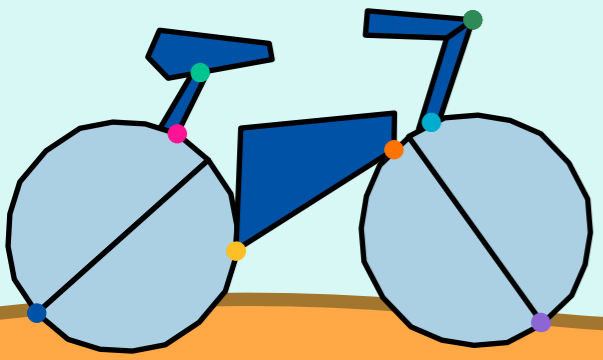
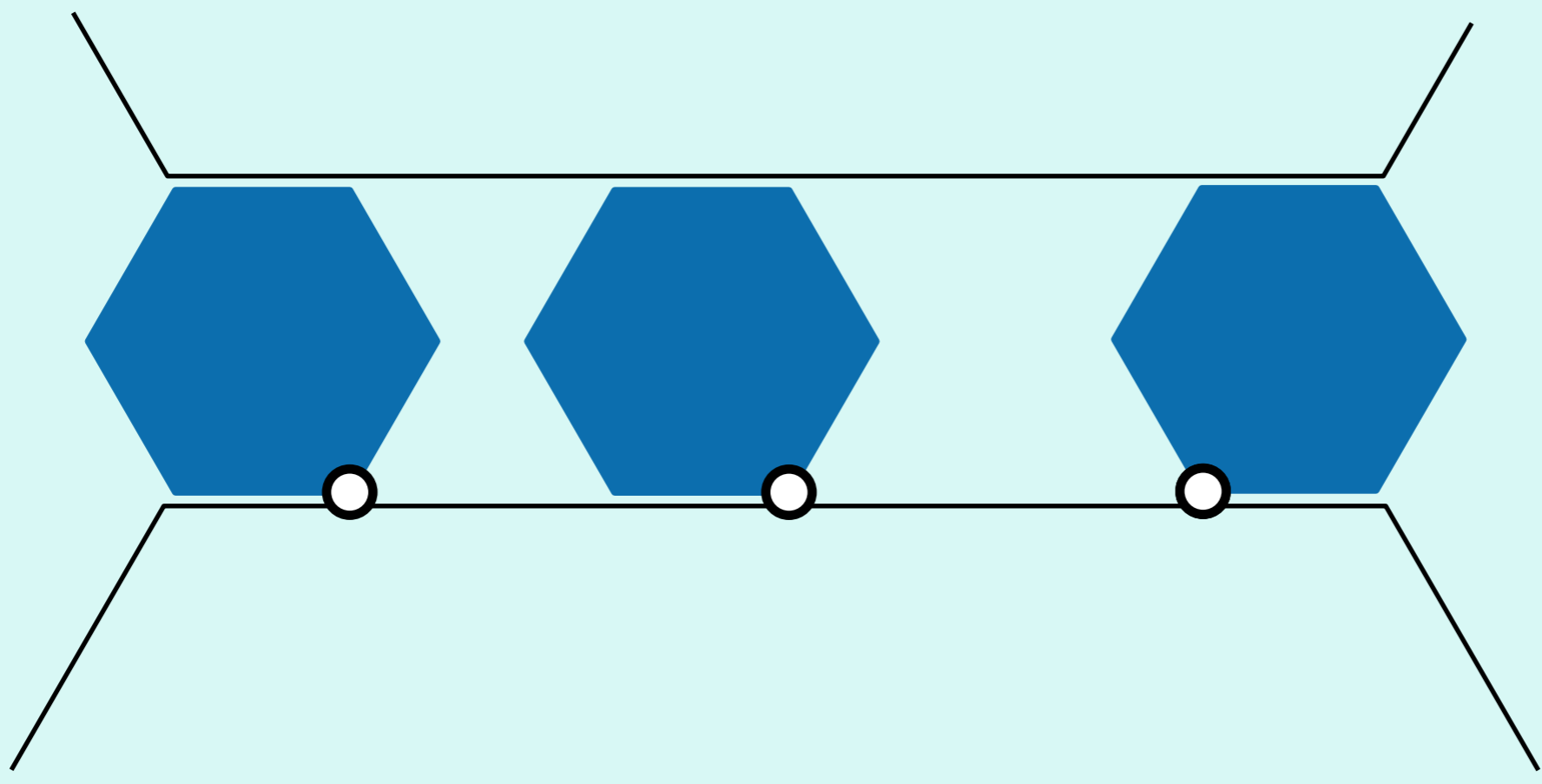
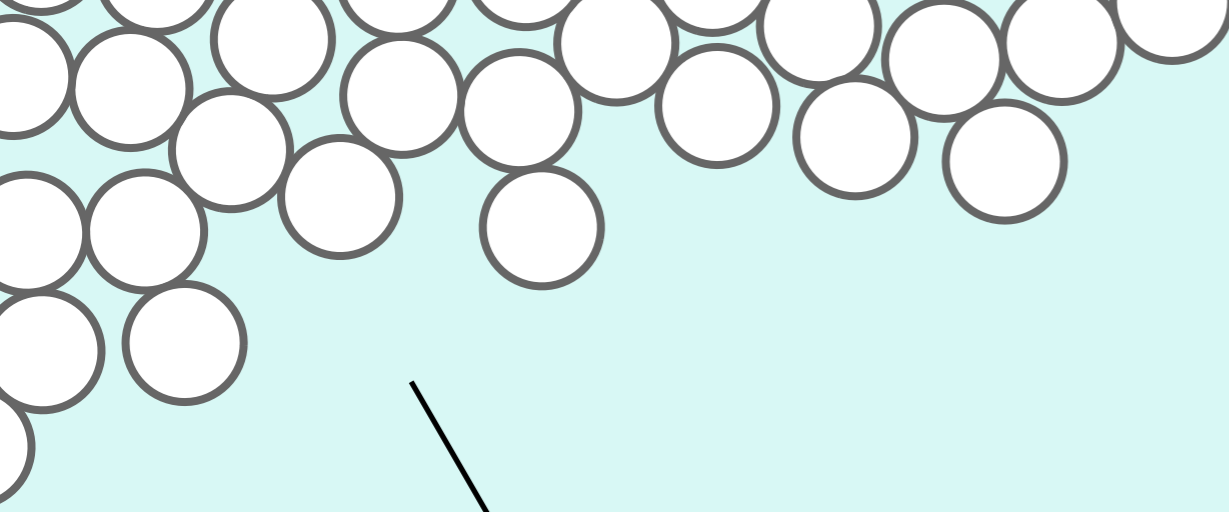
a more complicated
(but stronger)
hardness proof

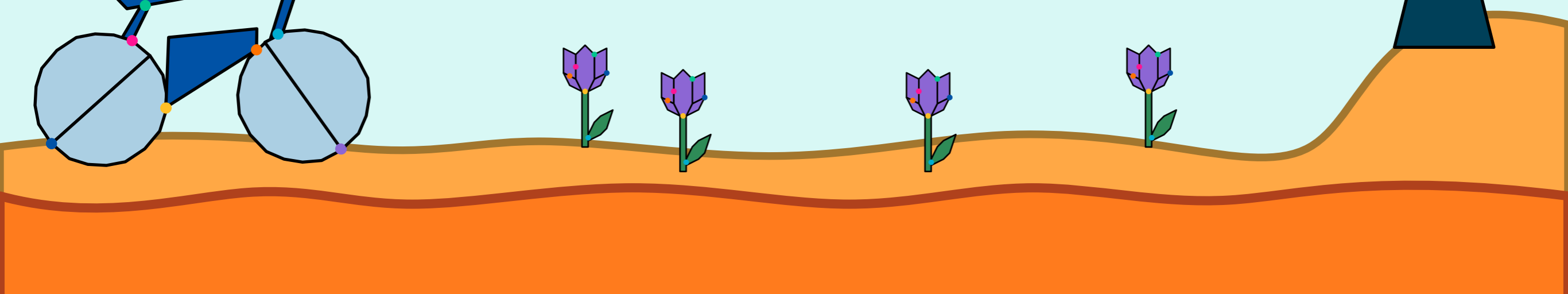
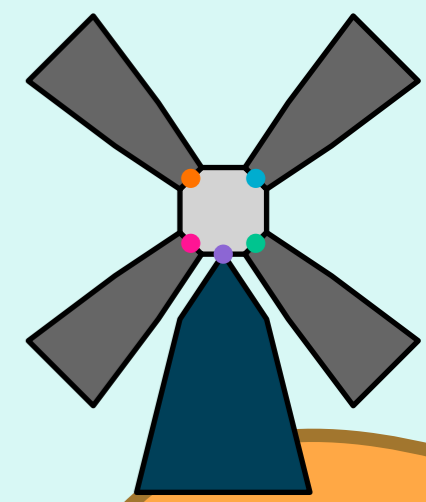
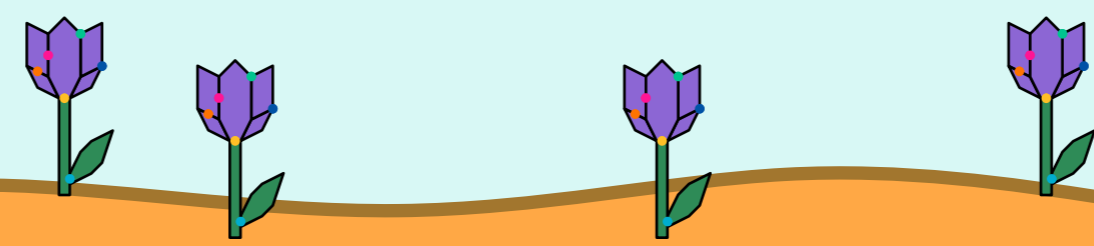
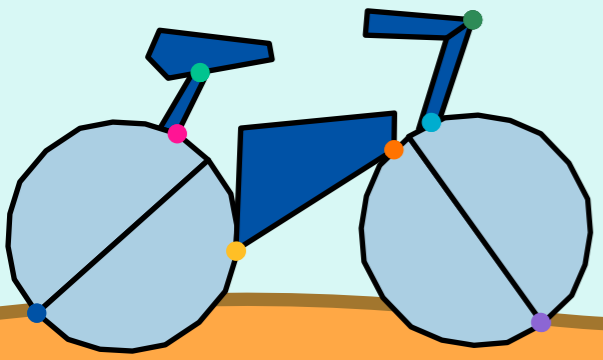
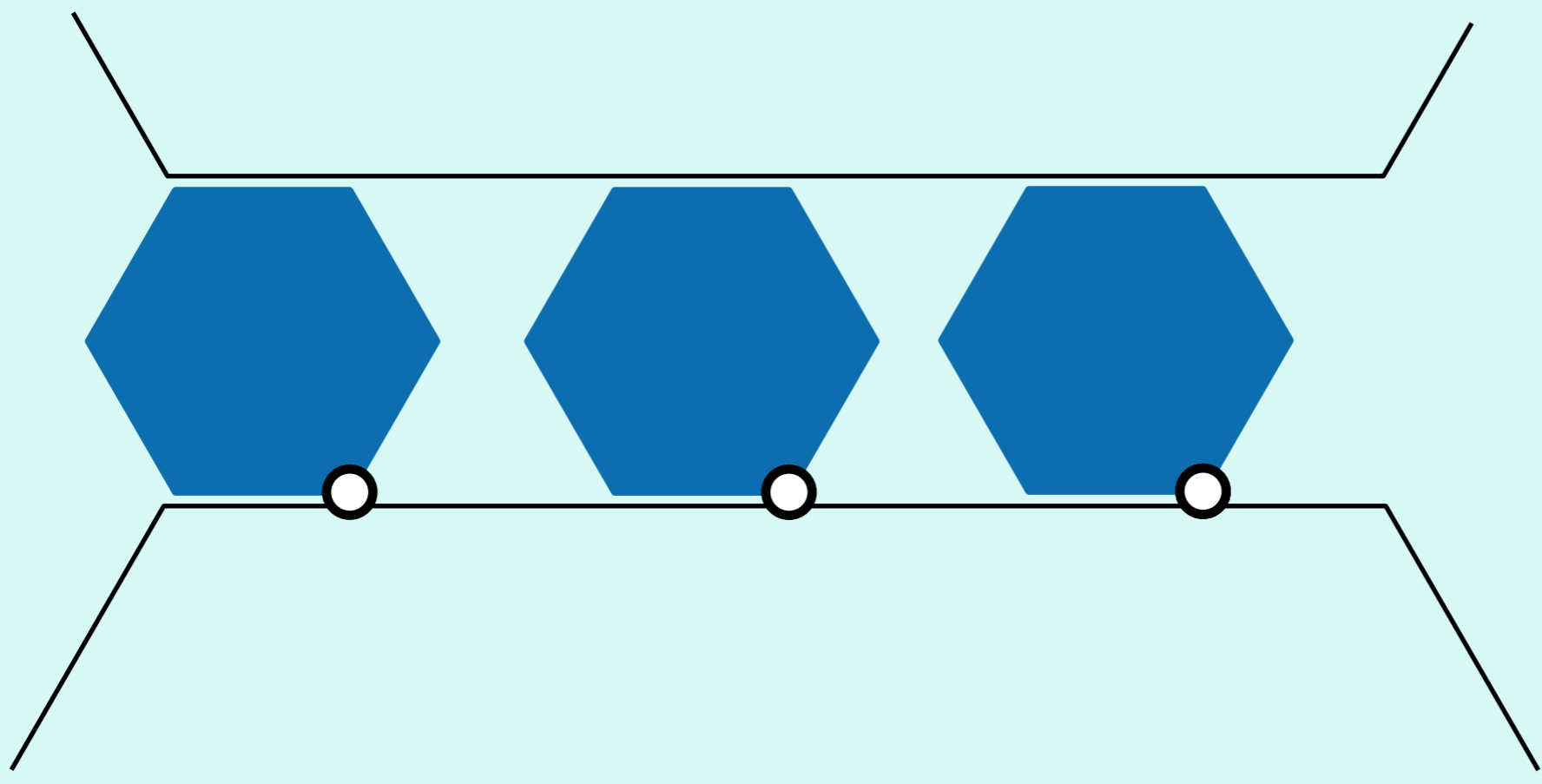
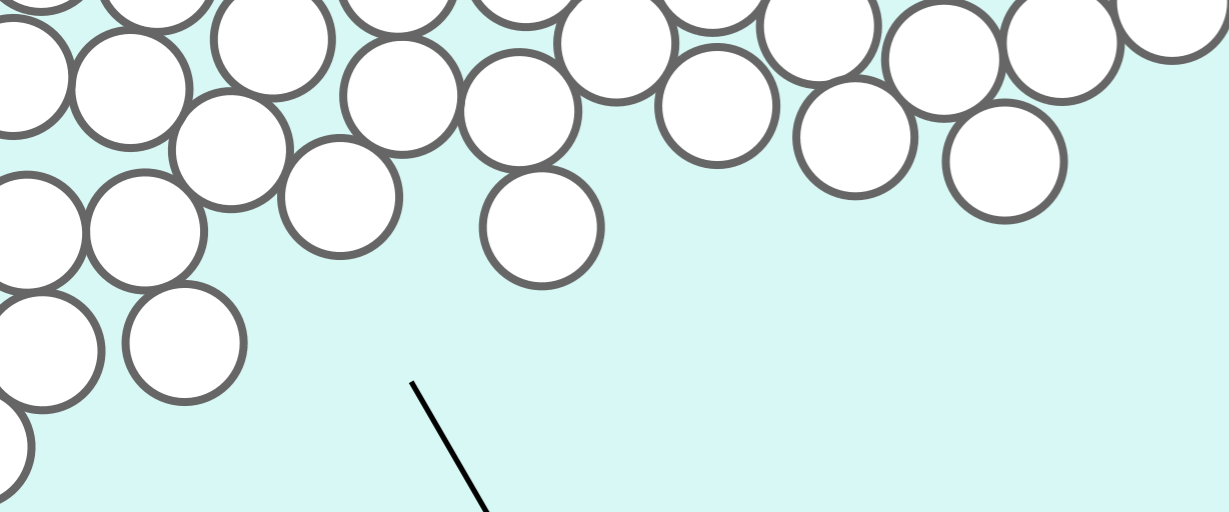


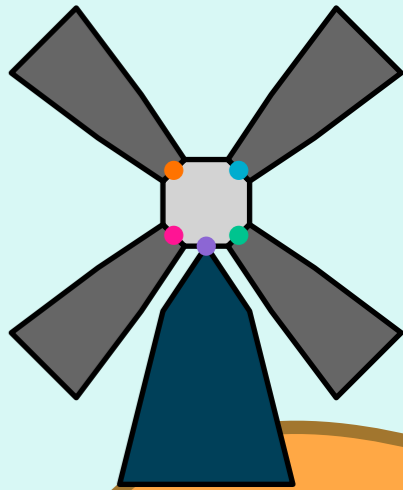
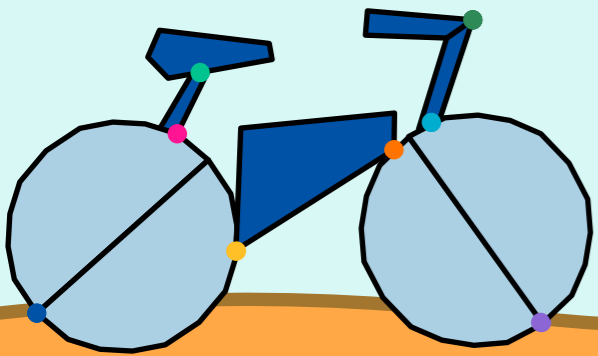
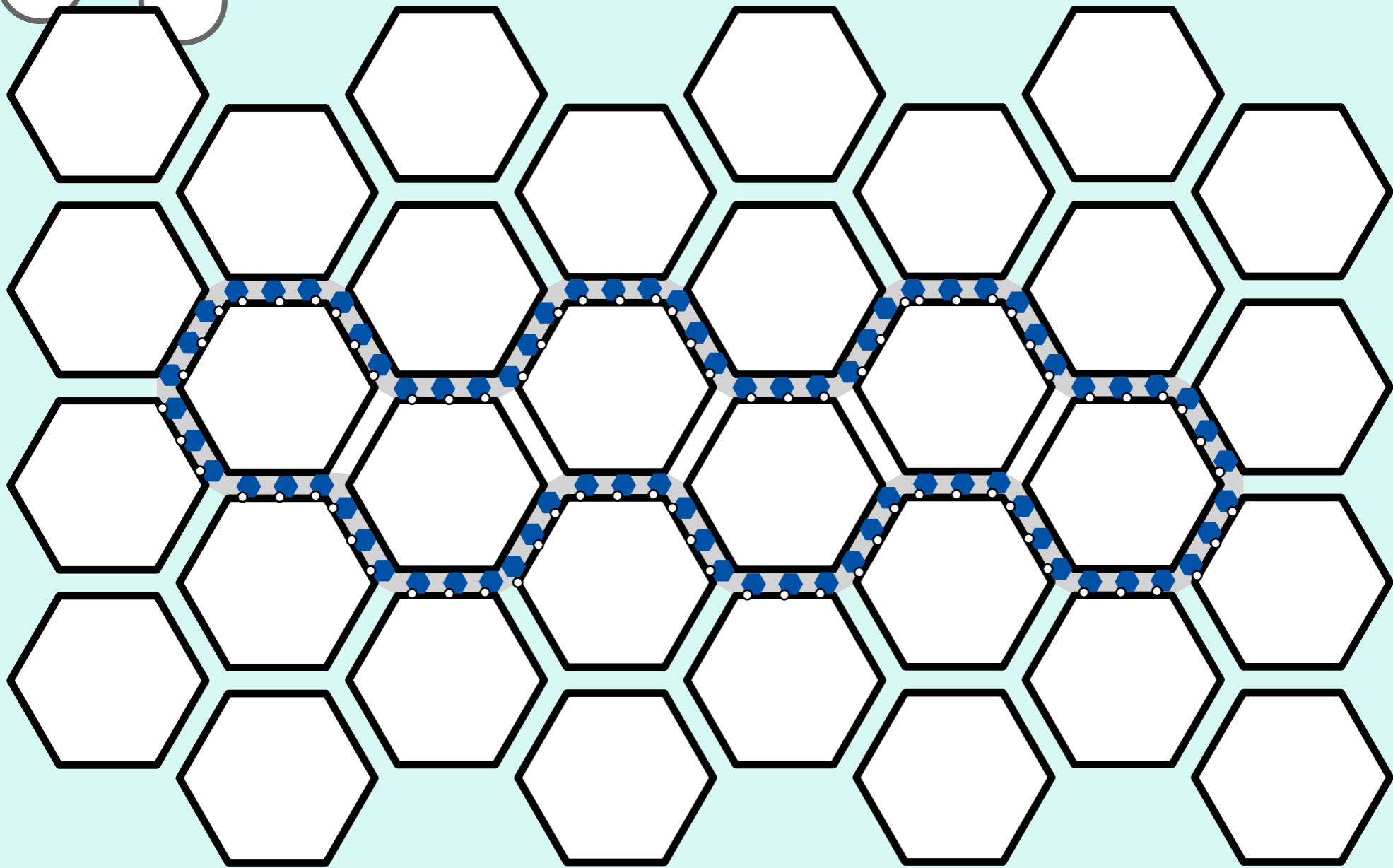
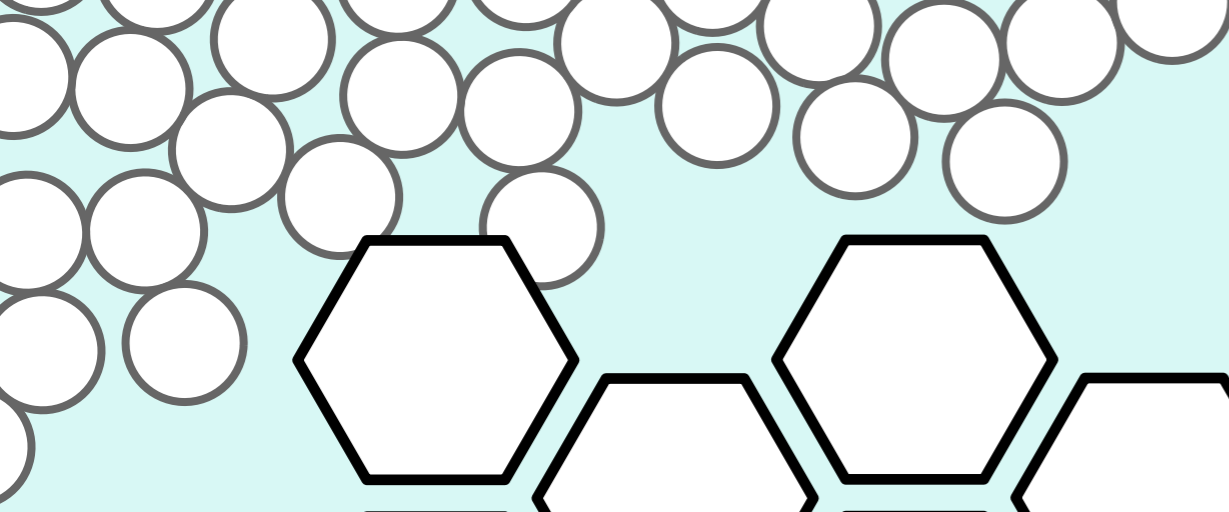


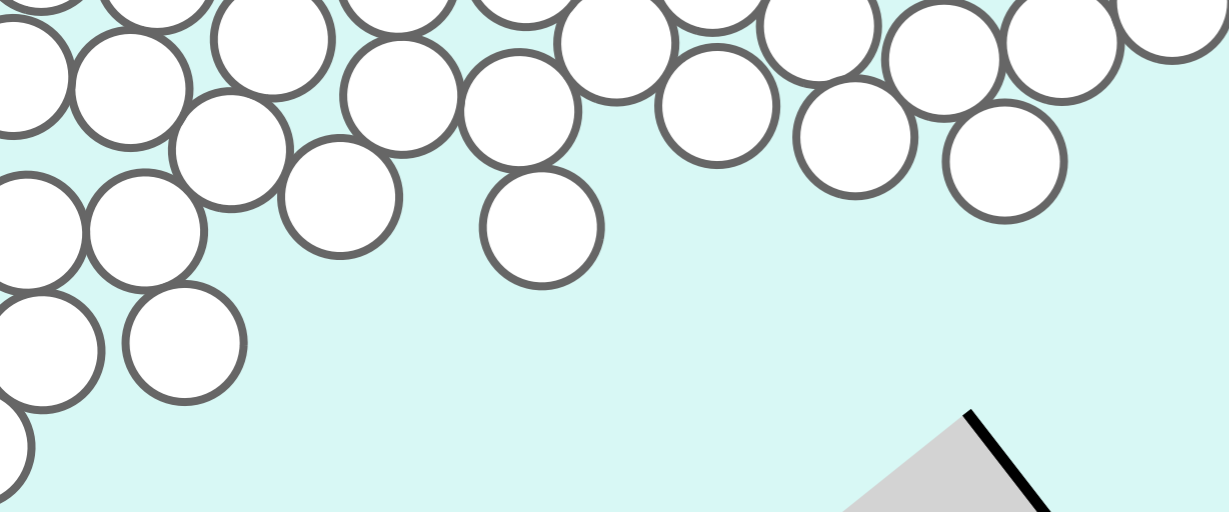




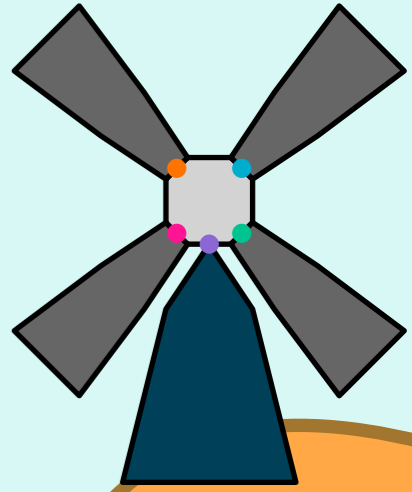
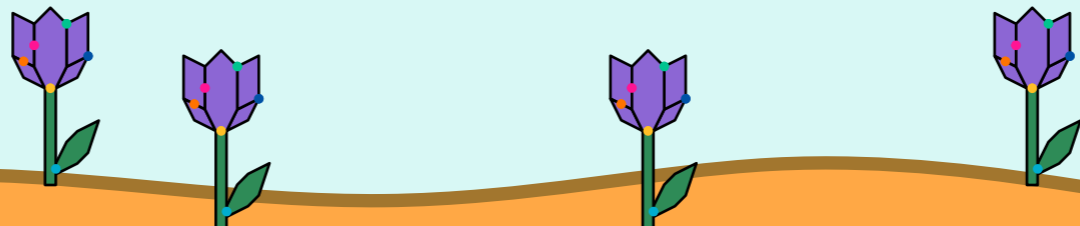
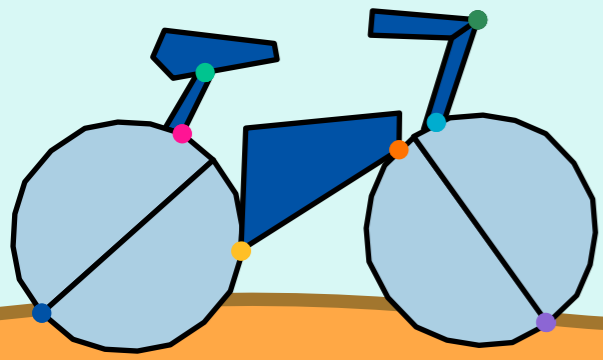
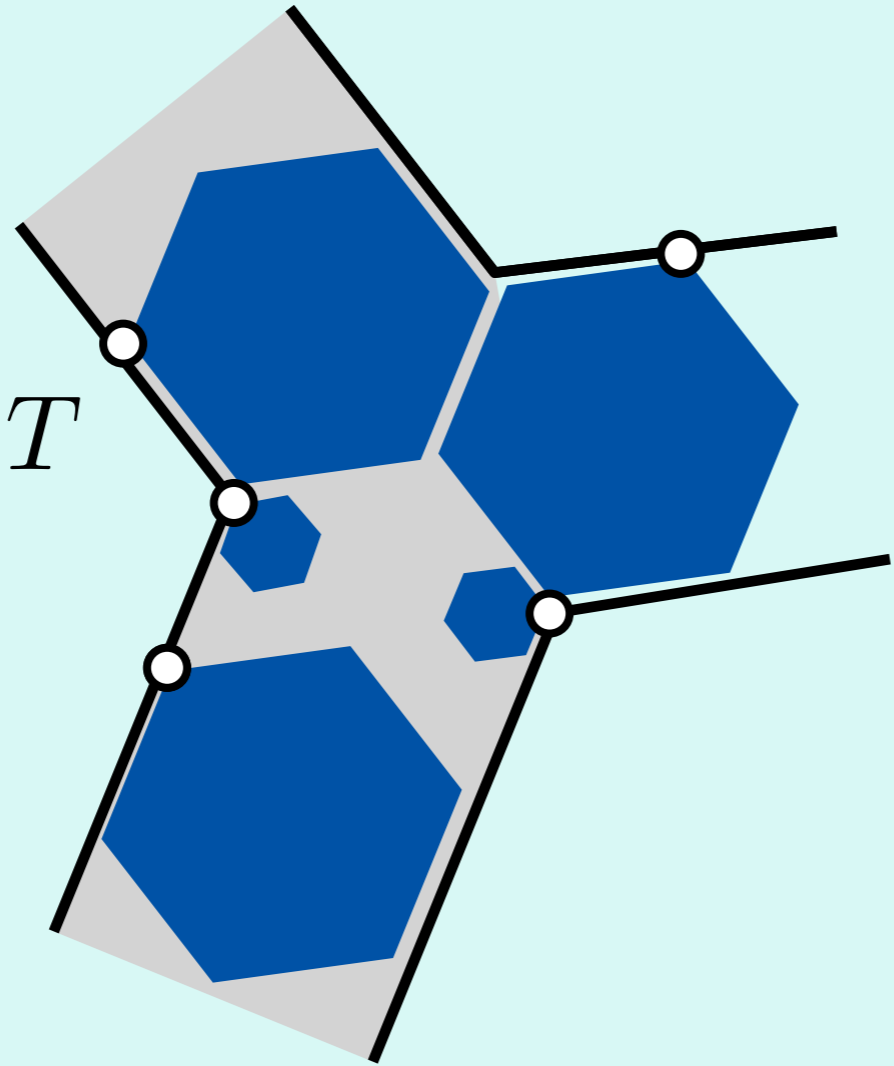


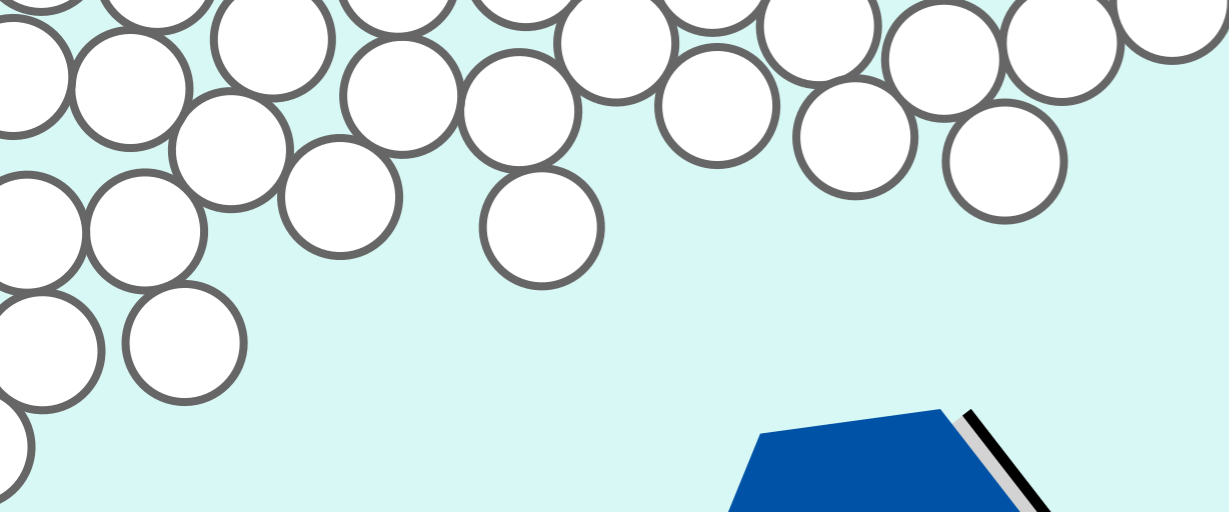




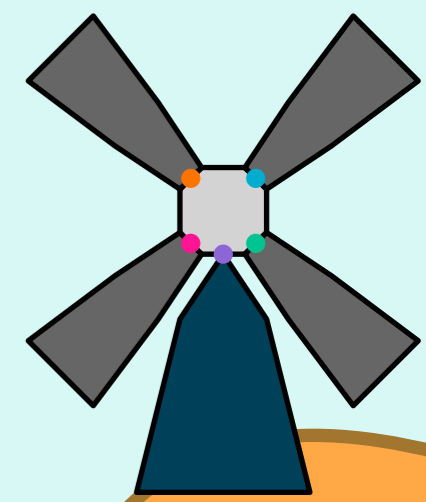
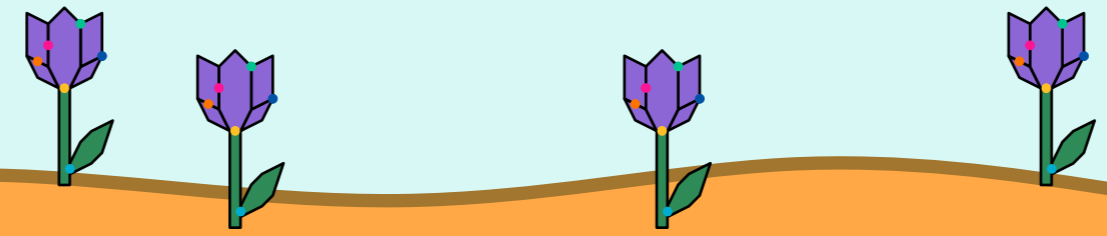
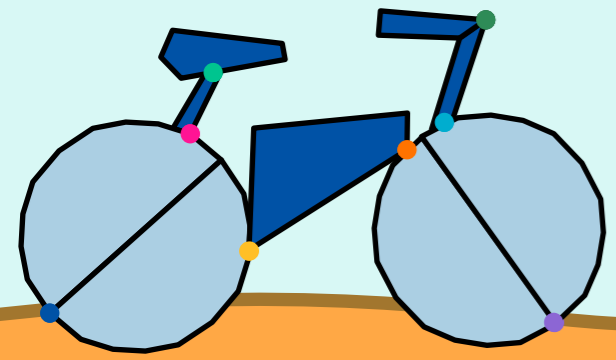
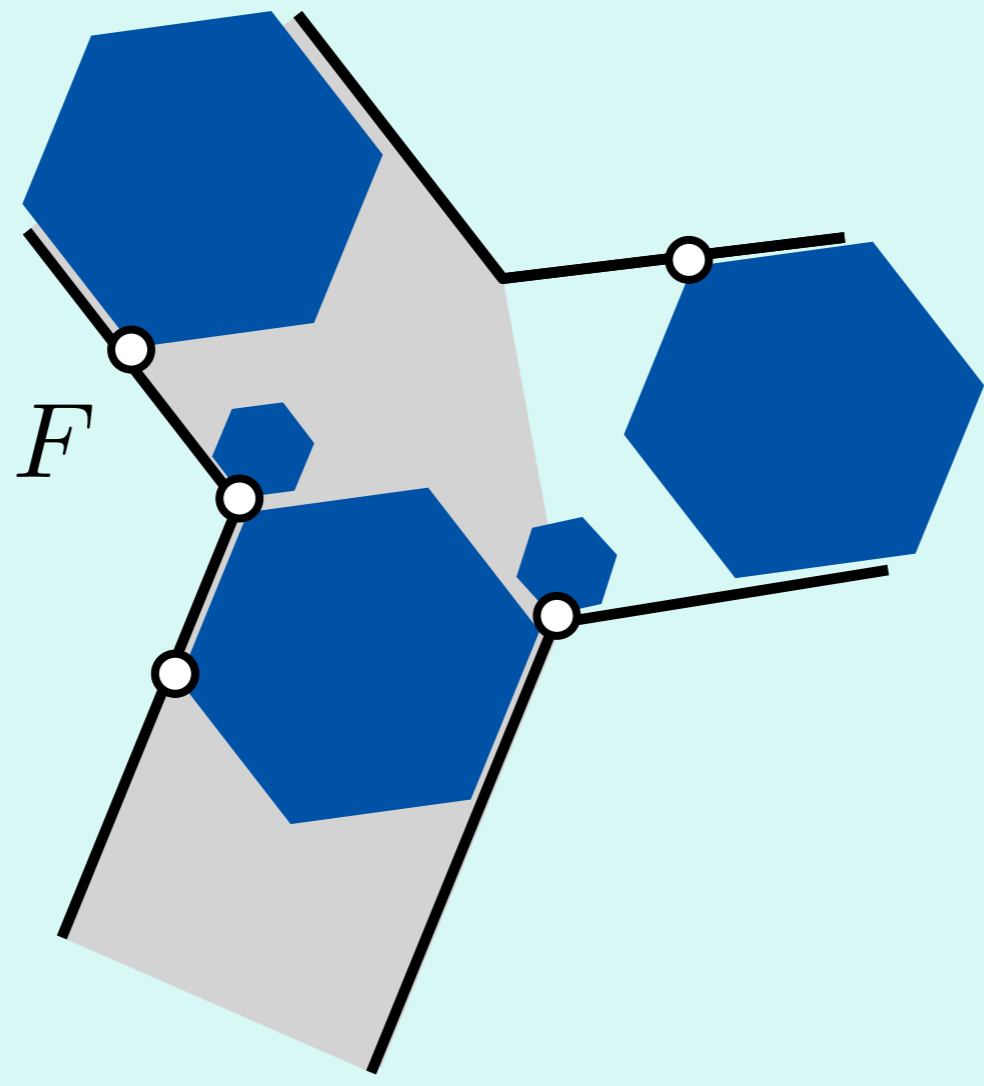


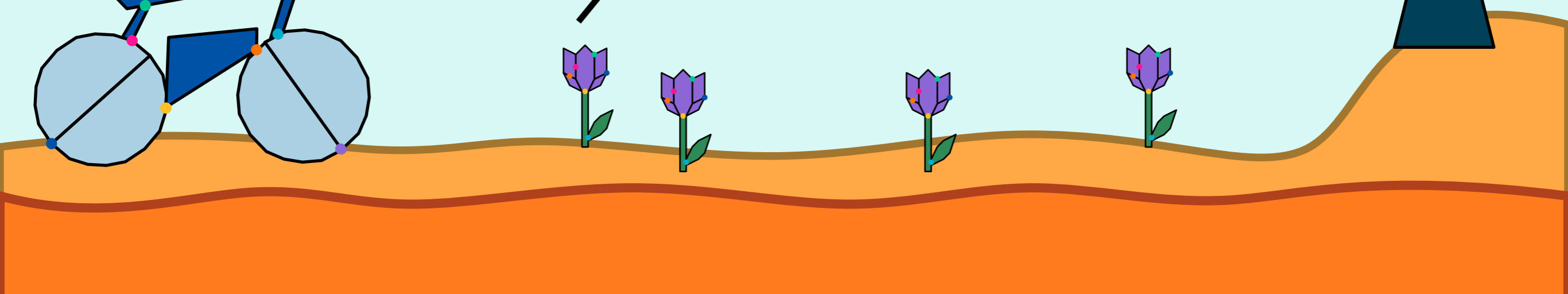
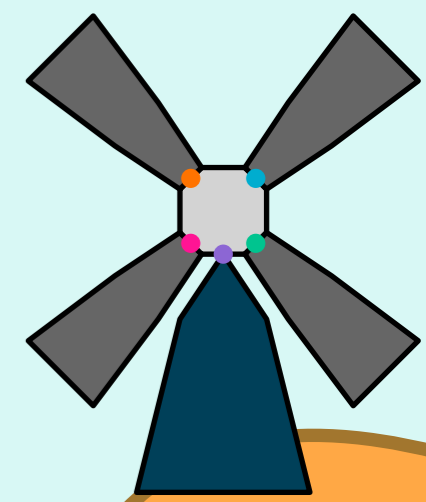
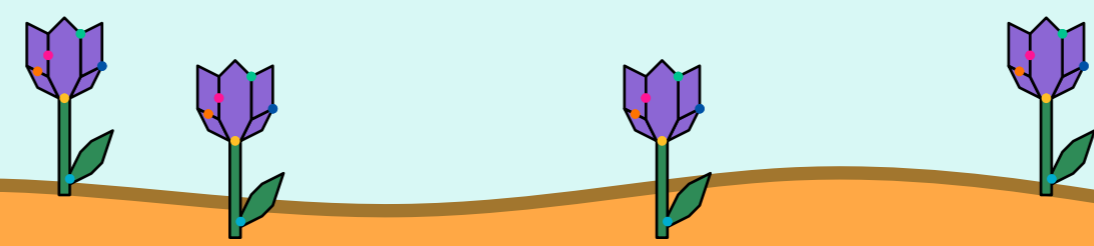
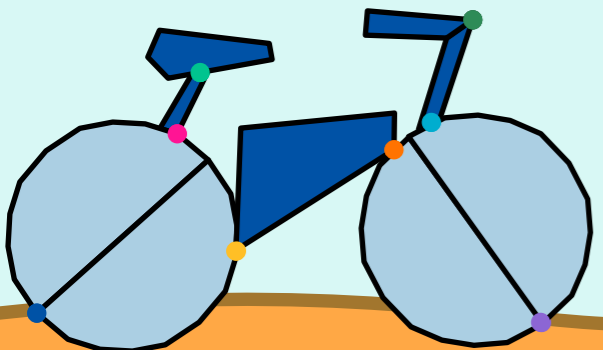
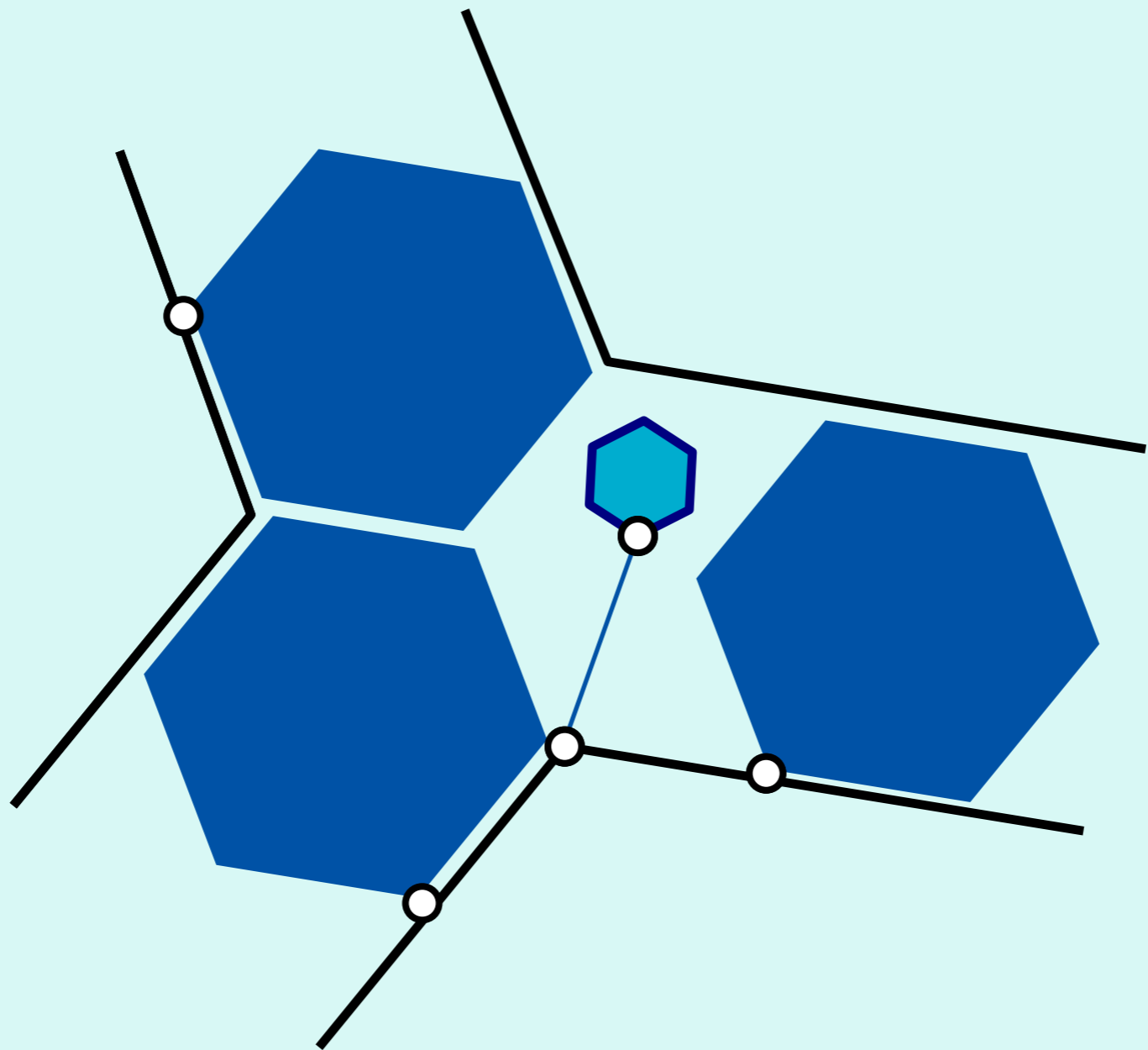
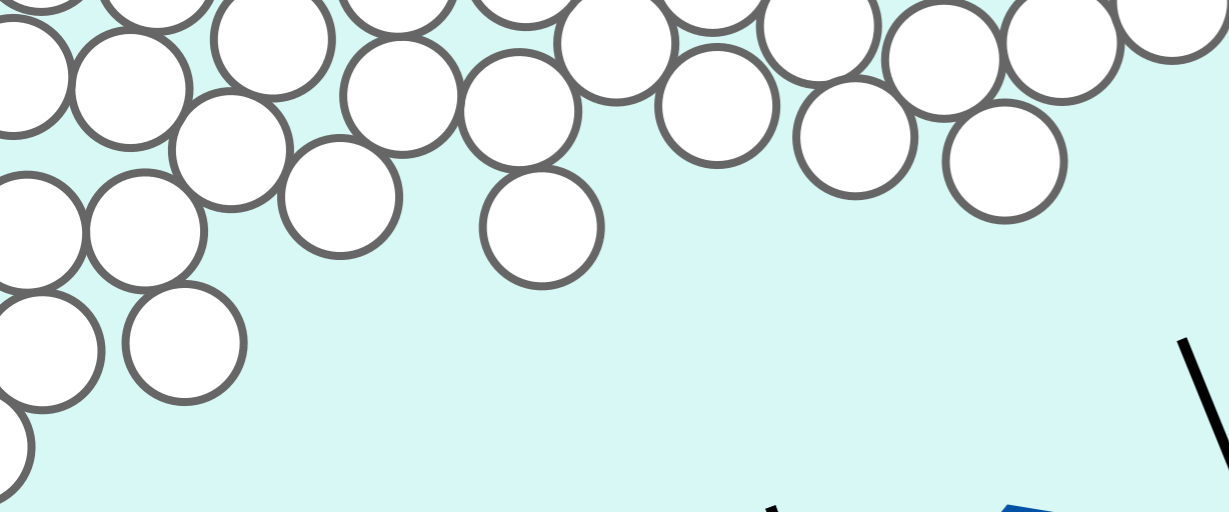
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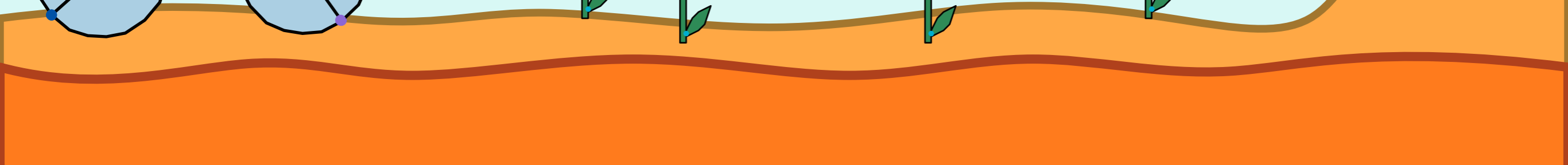
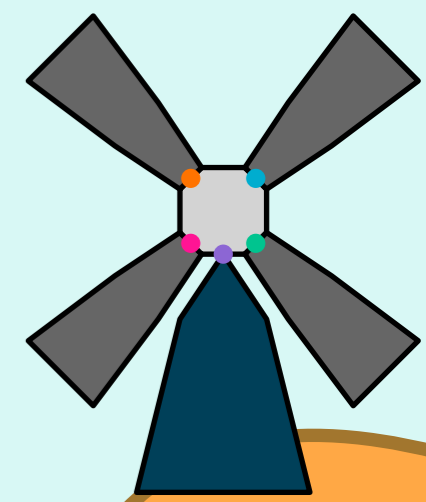
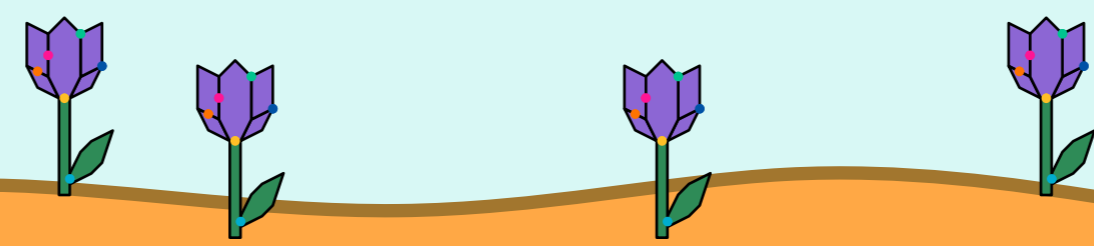
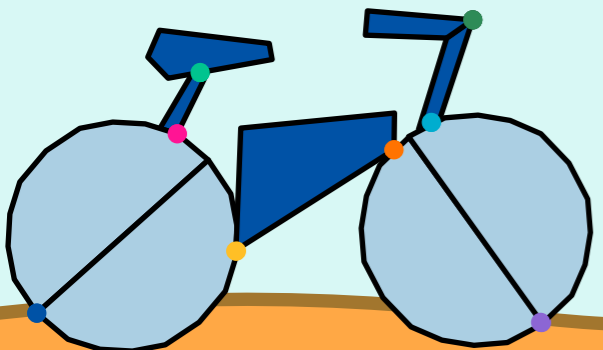
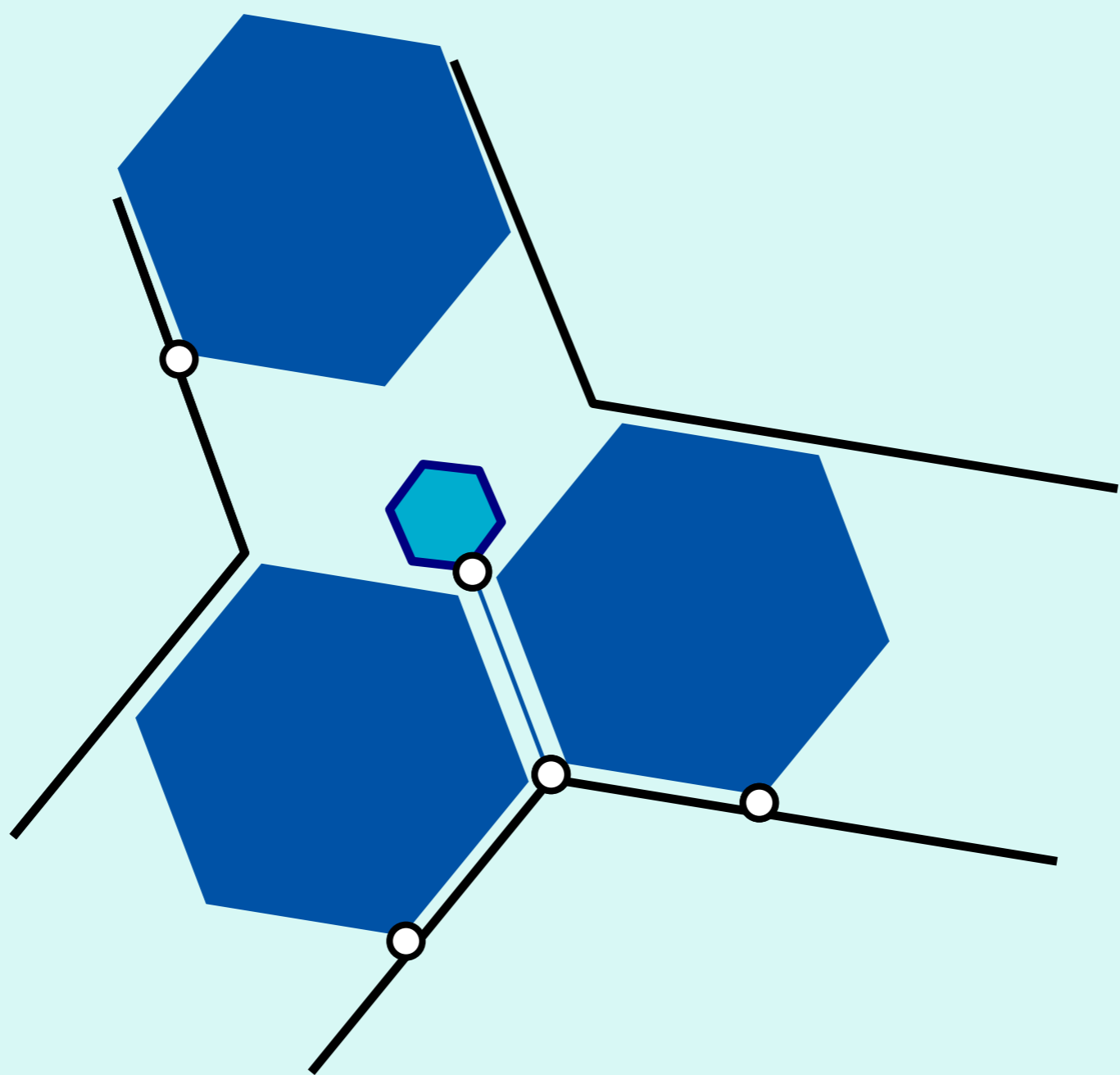
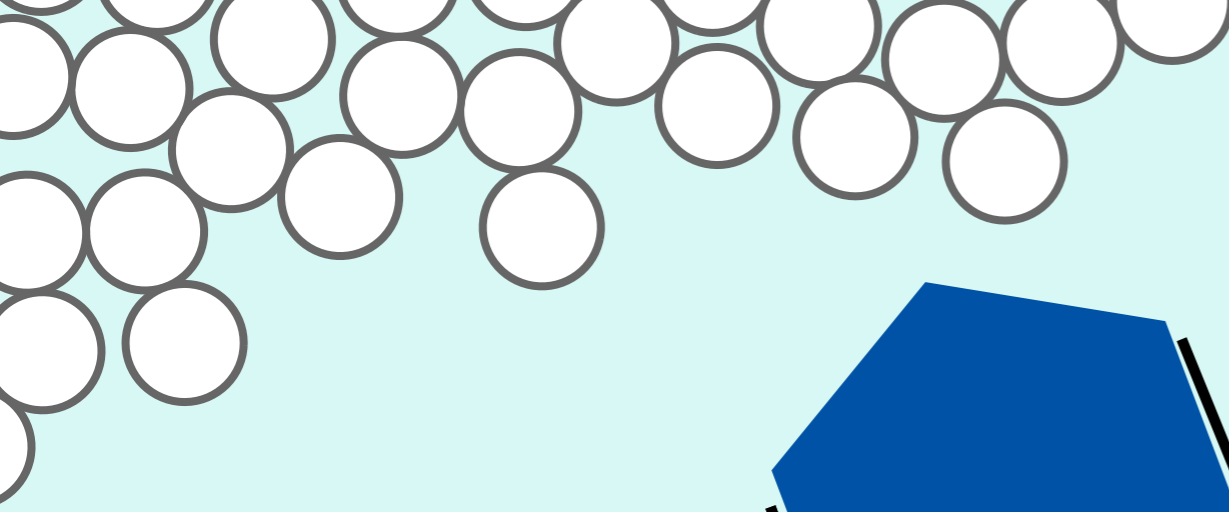


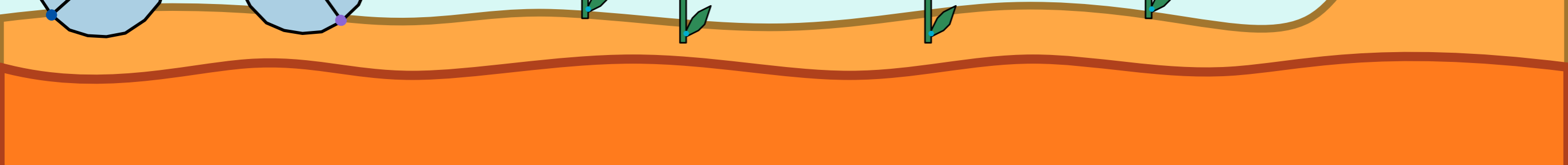
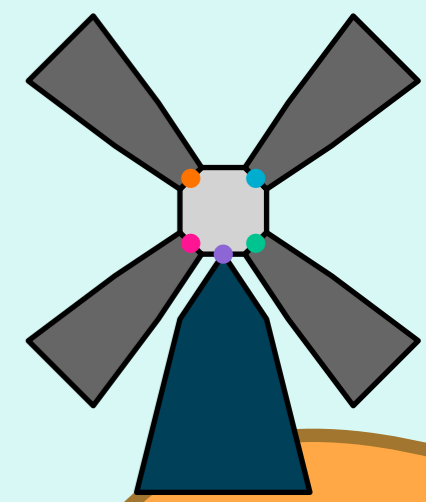
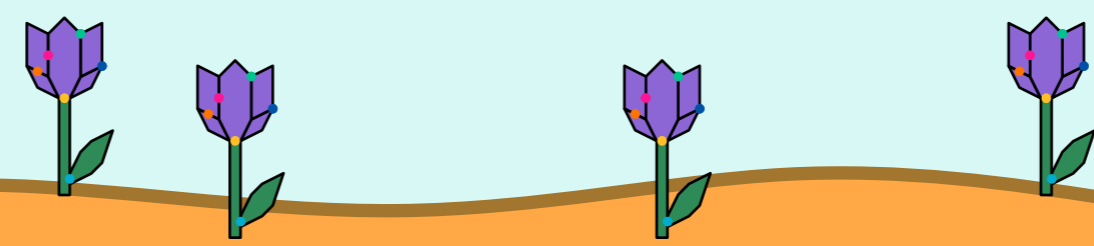
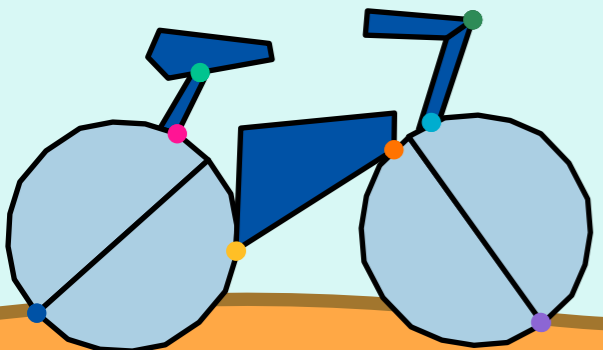
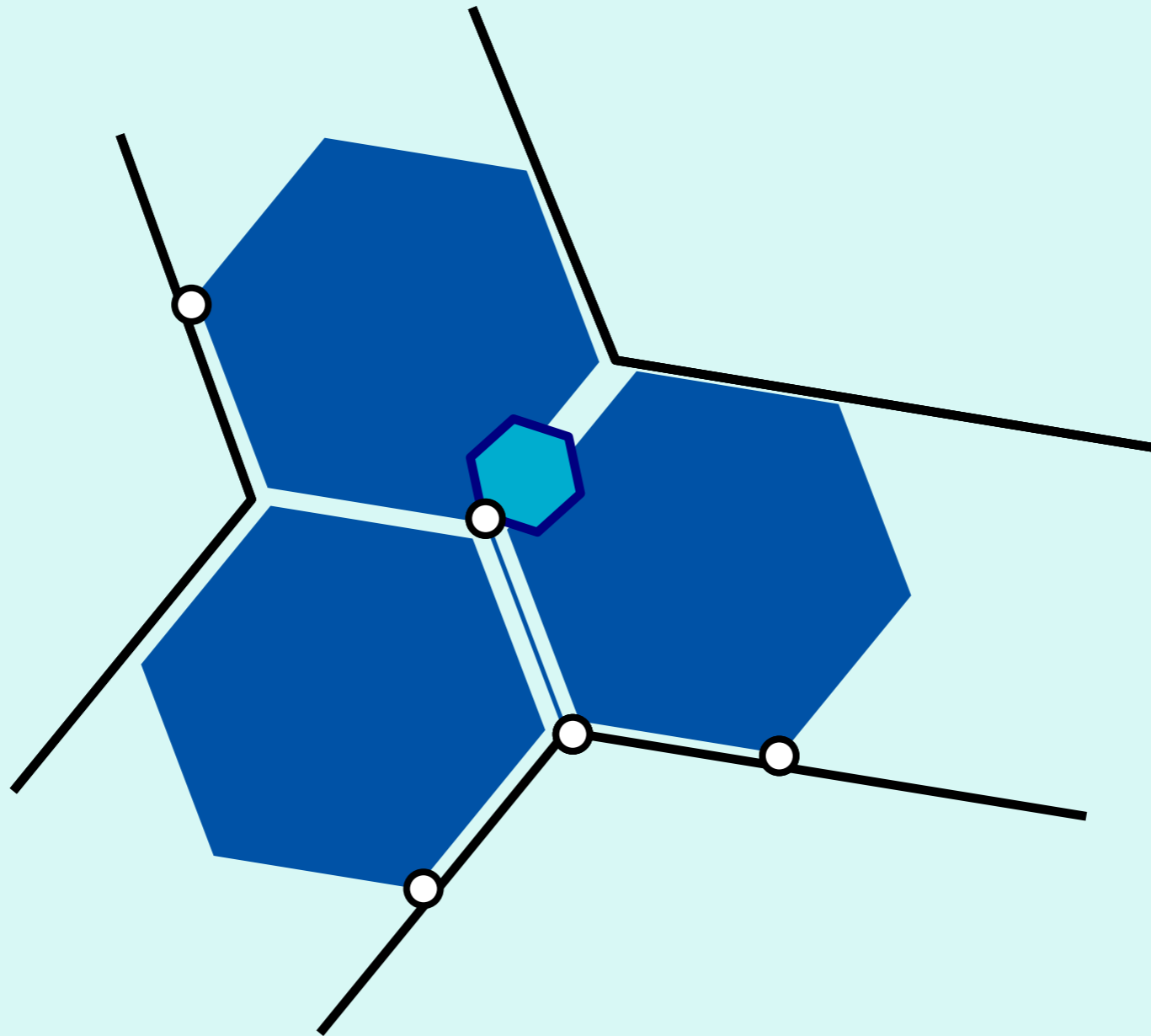
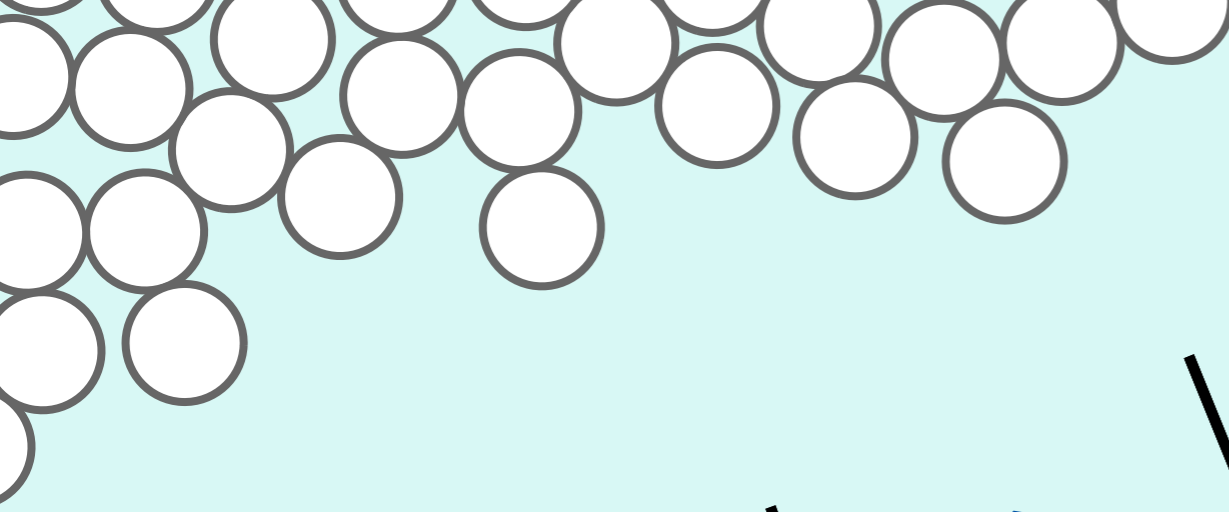


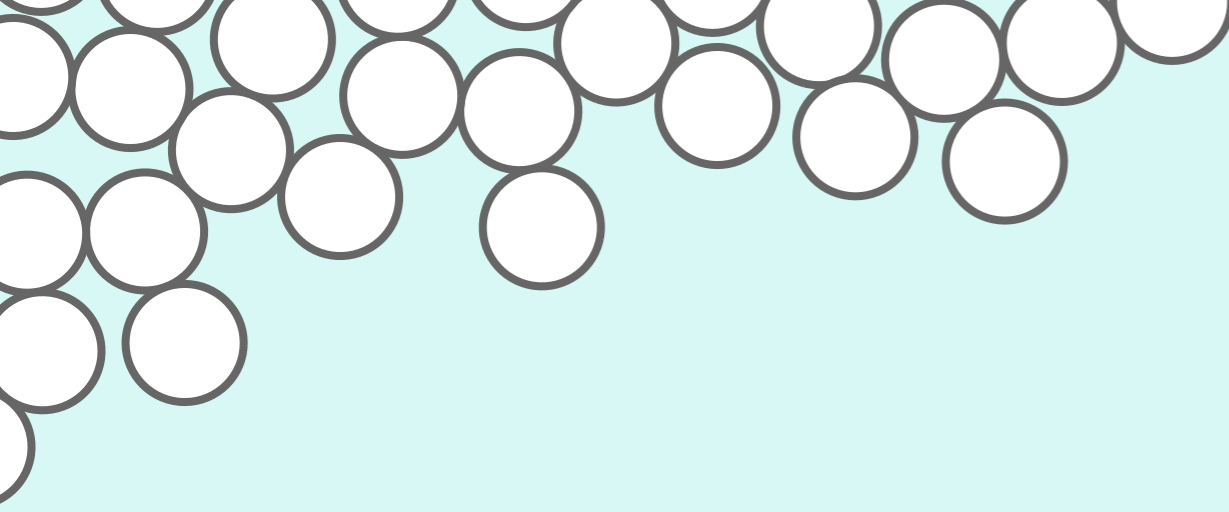
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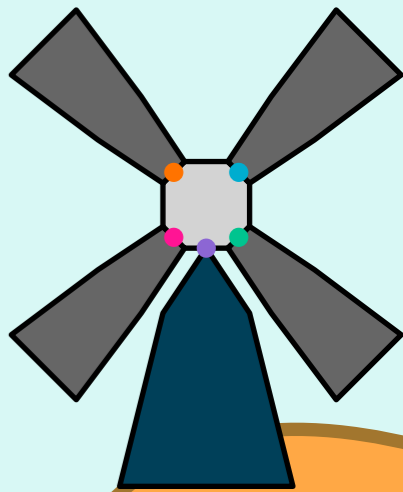
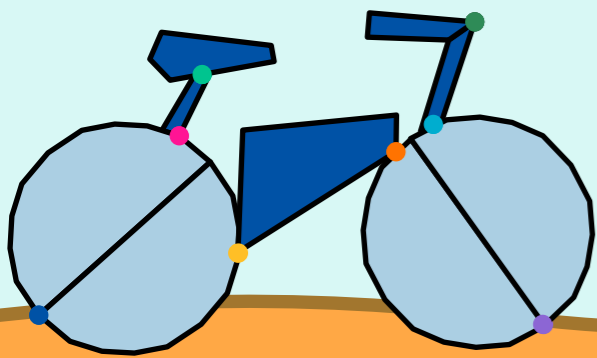


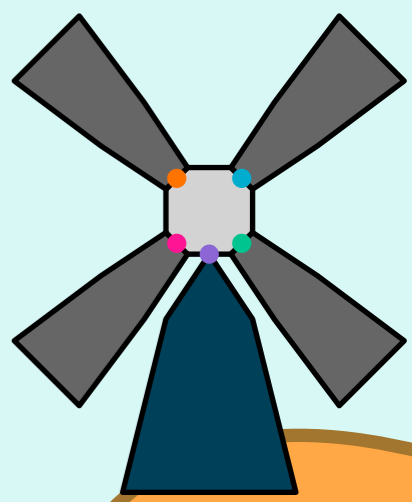
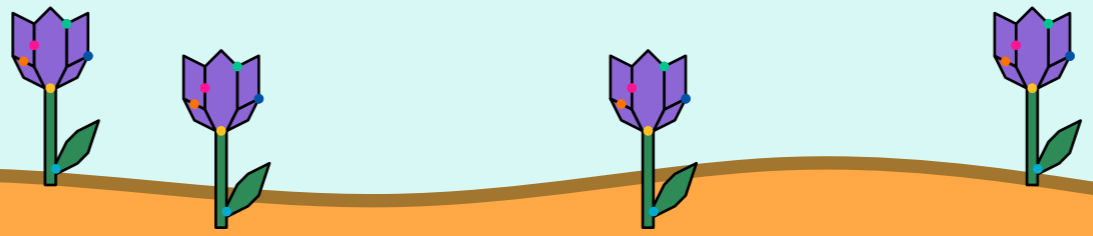
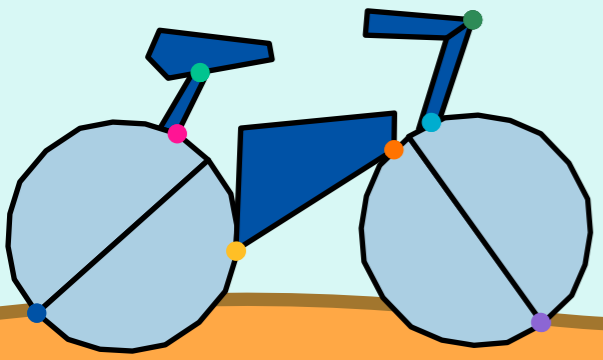
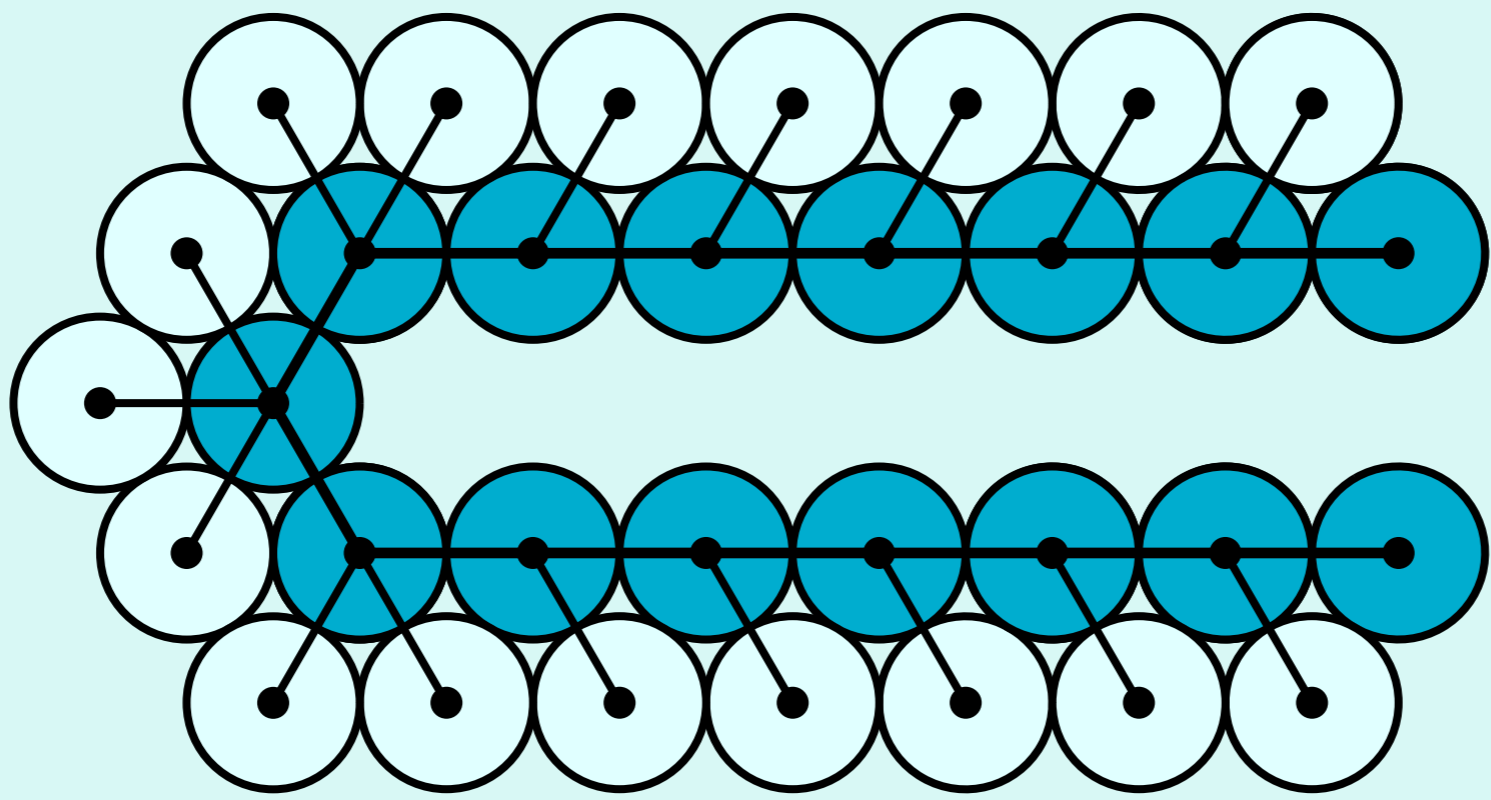
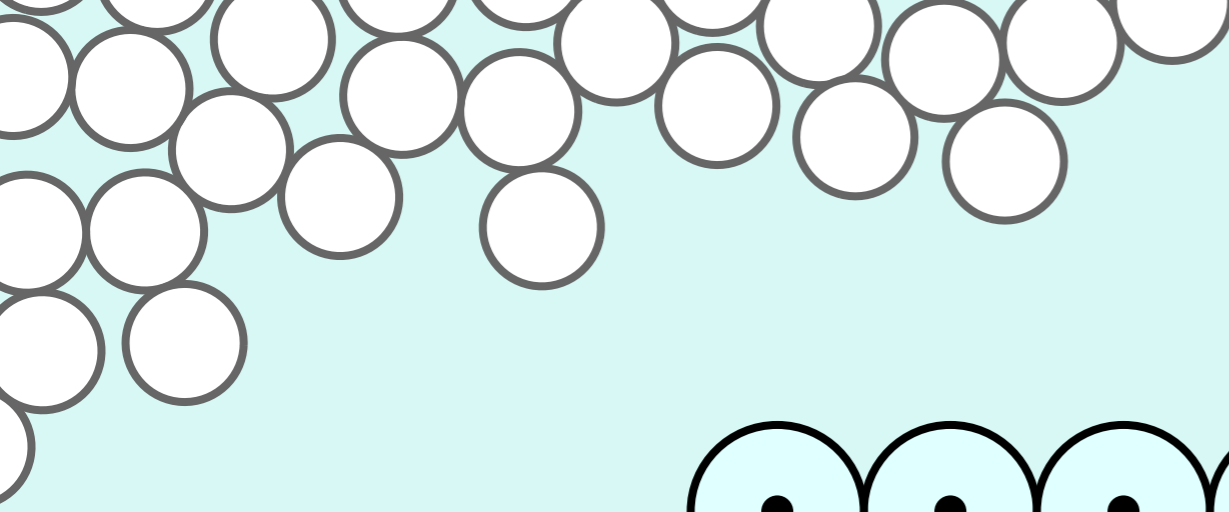


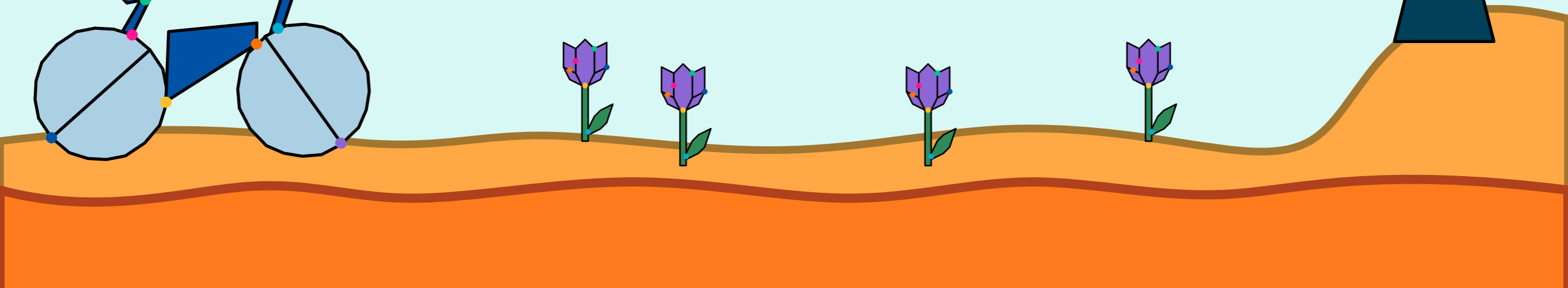
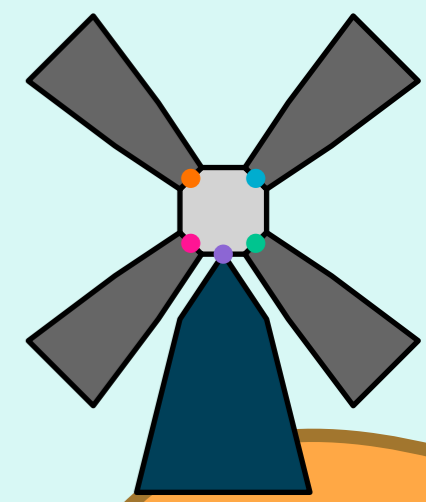
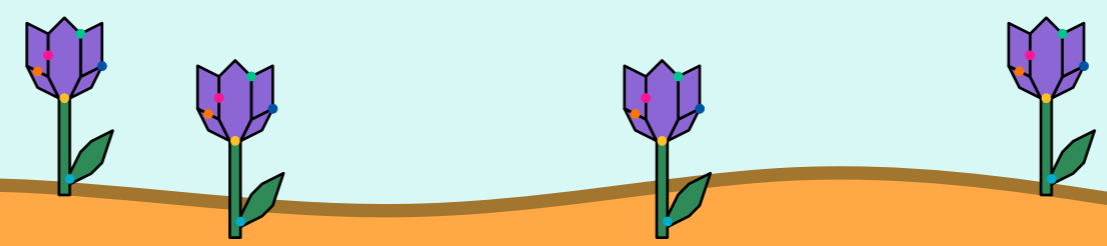
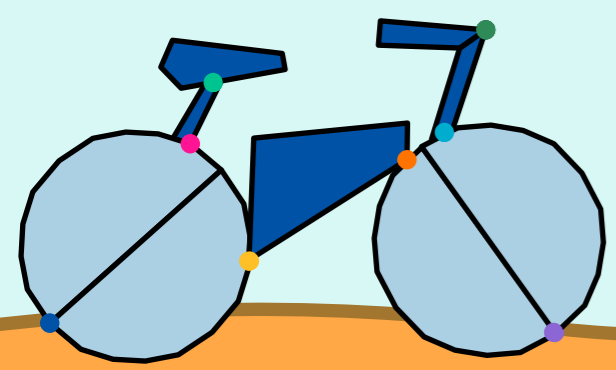
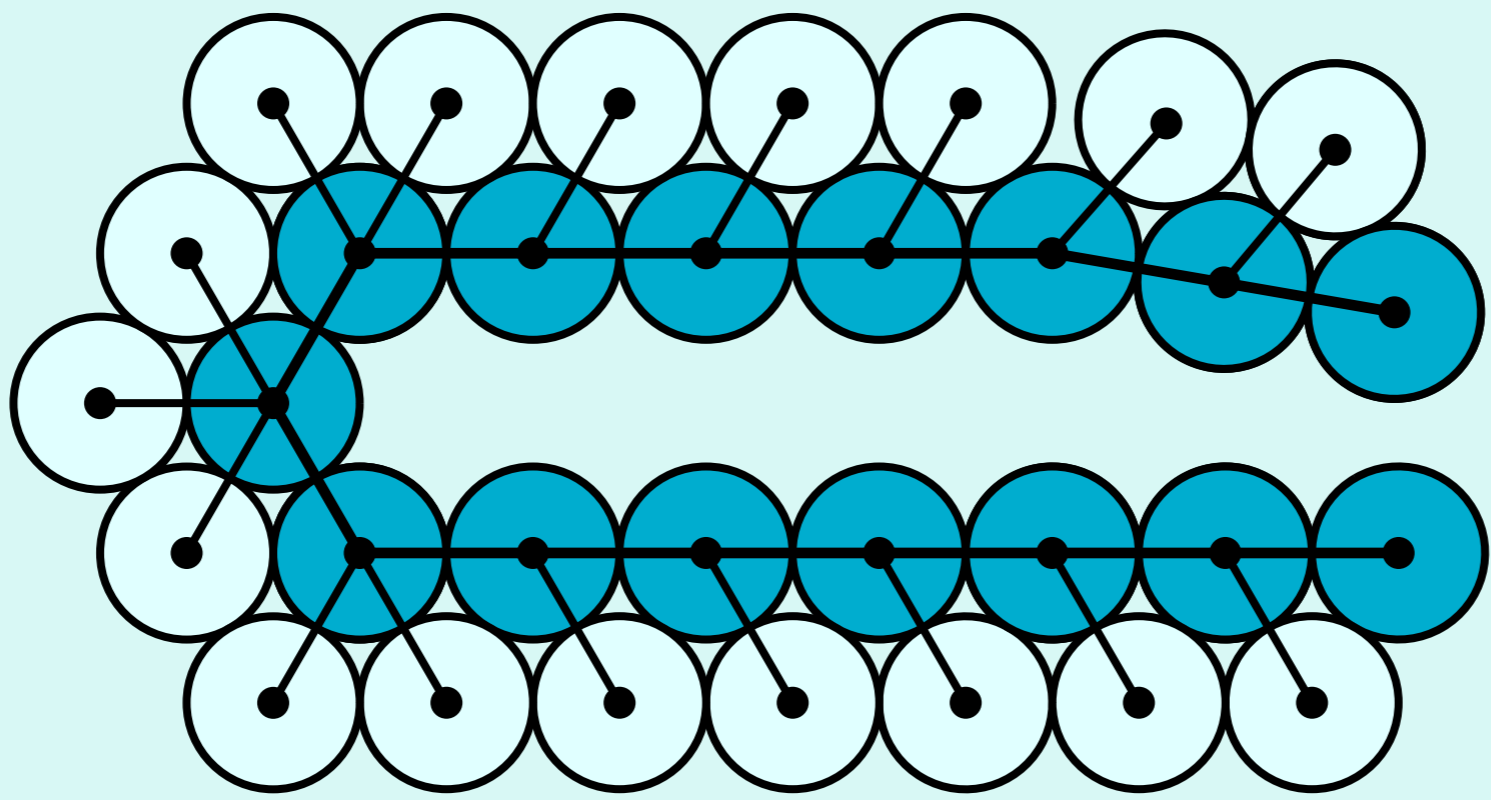
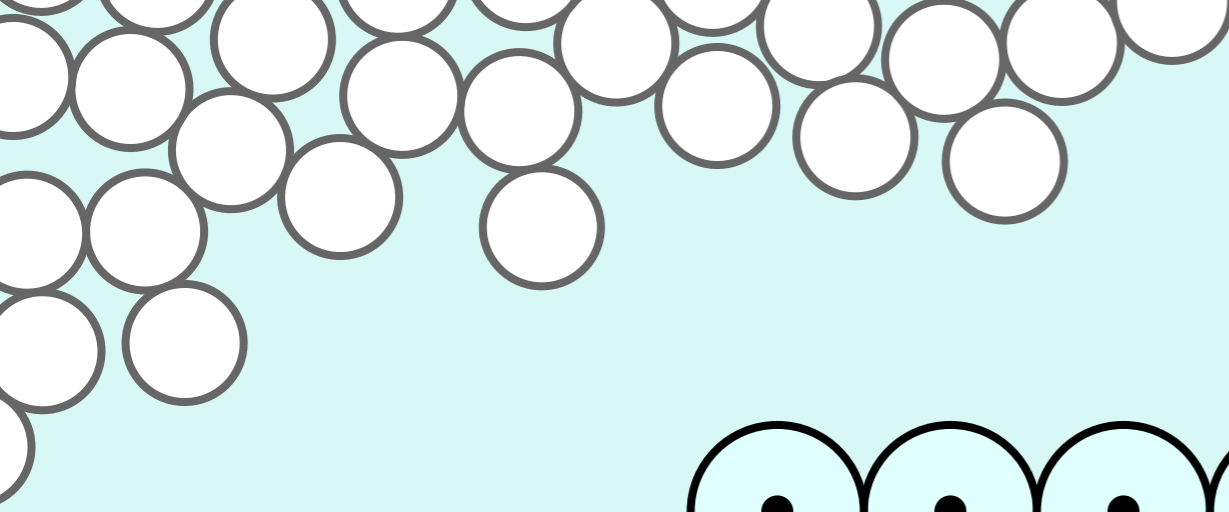


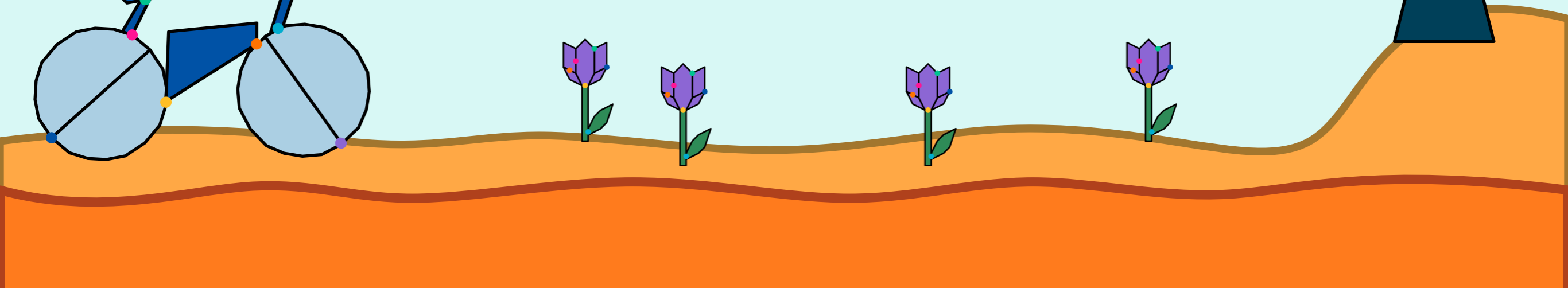
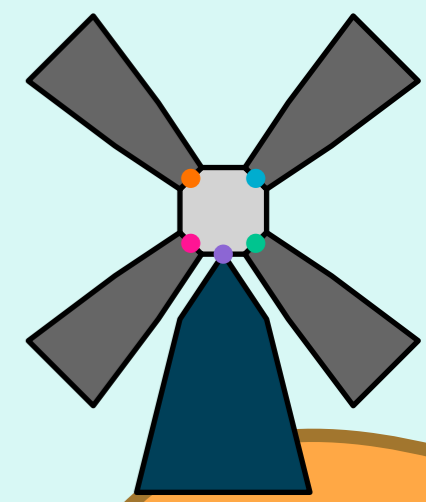
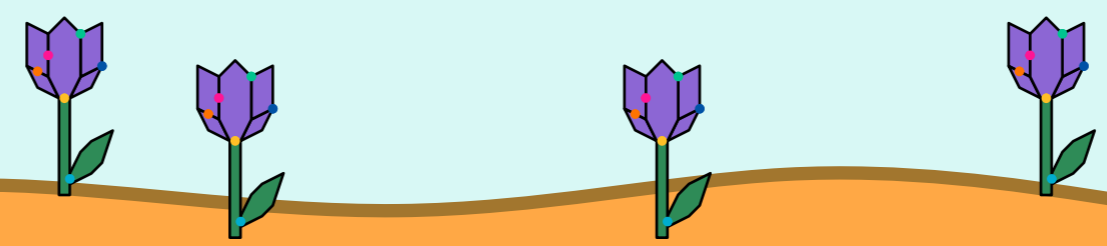
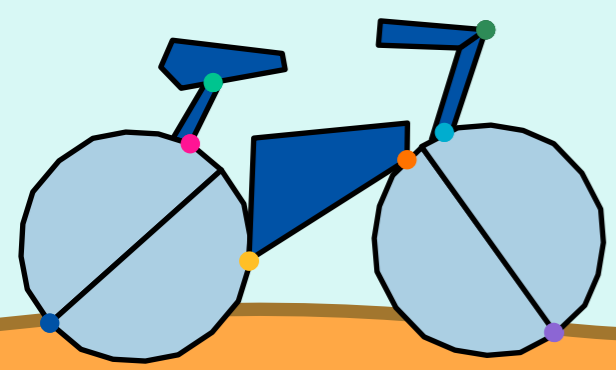
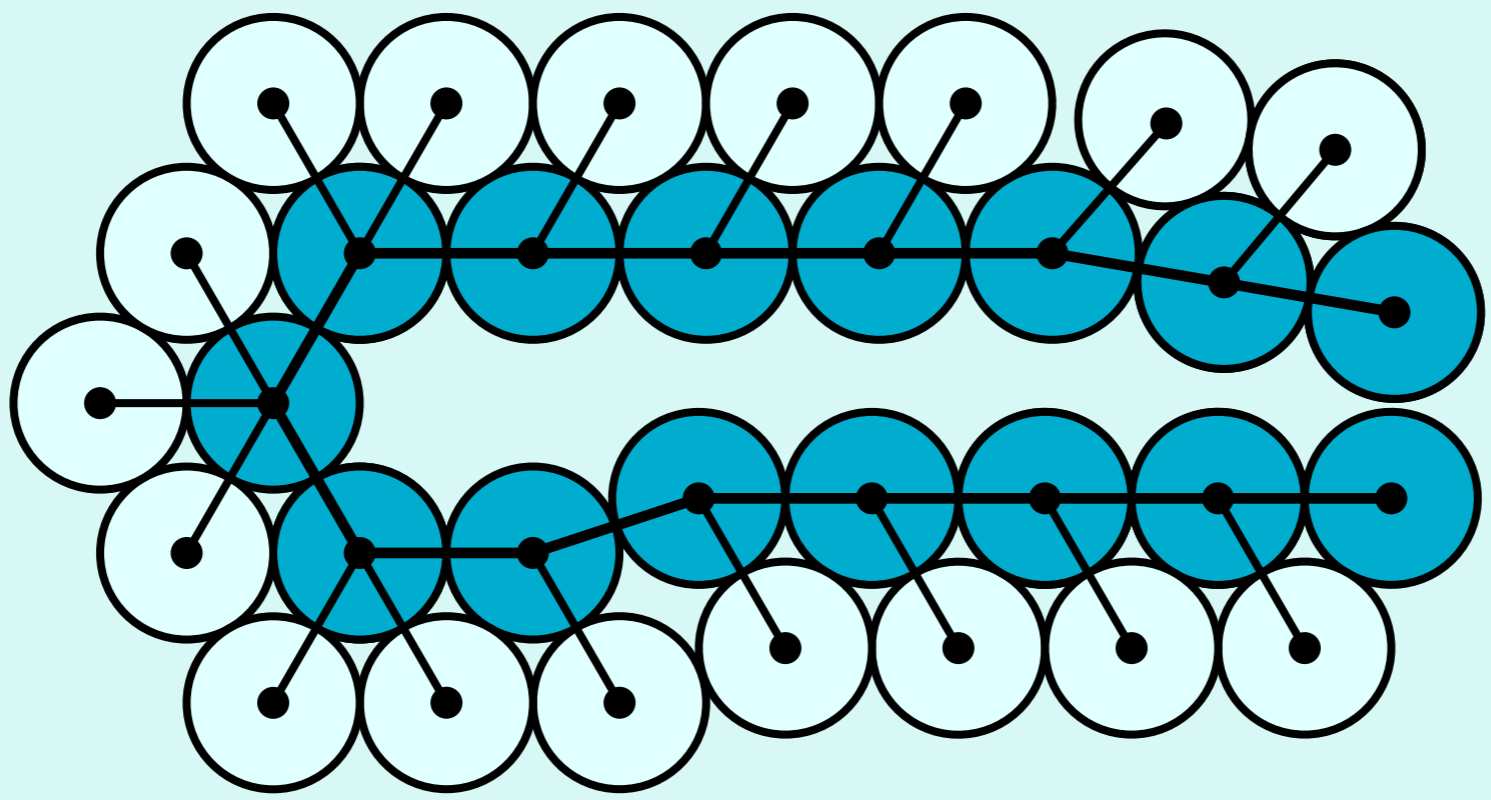
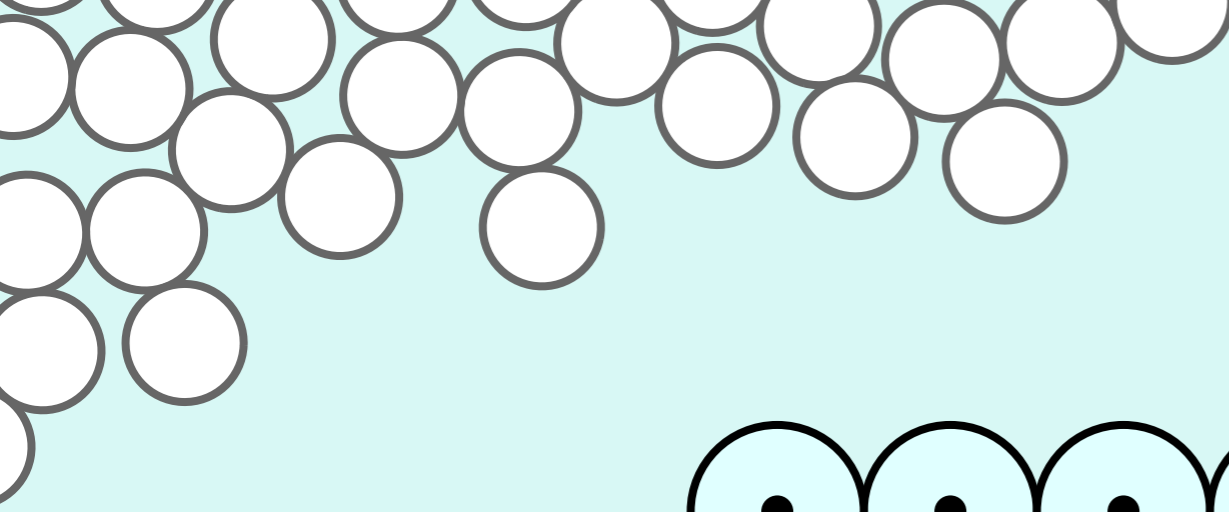


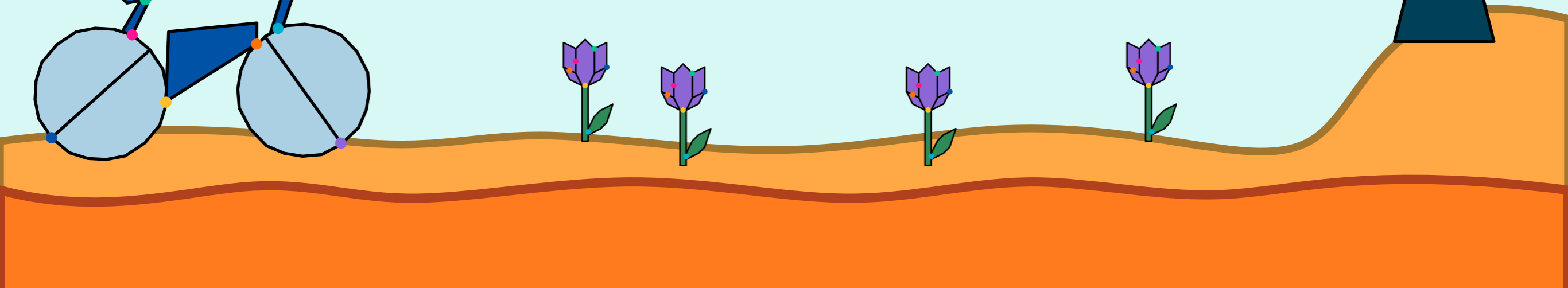
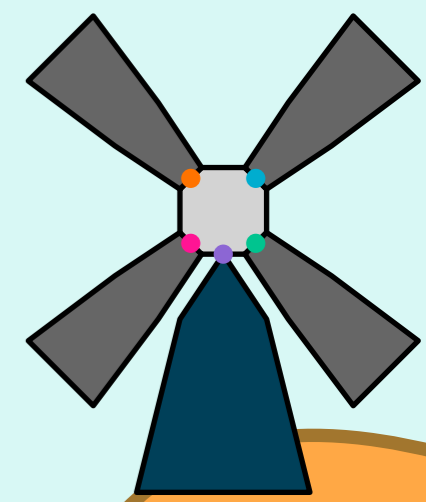
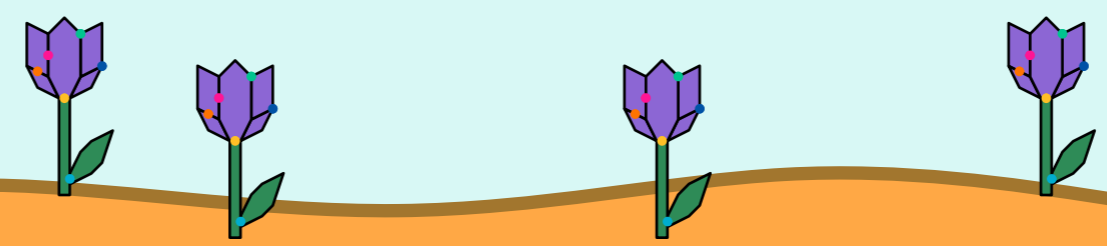
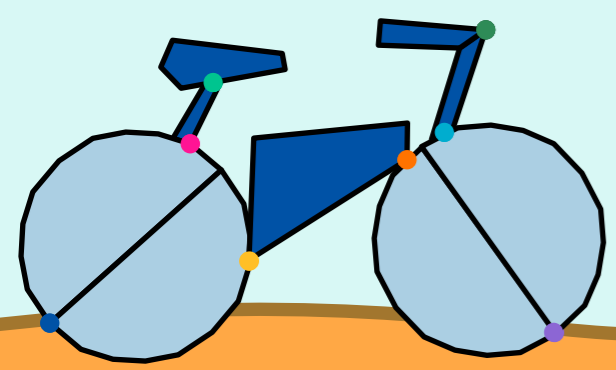
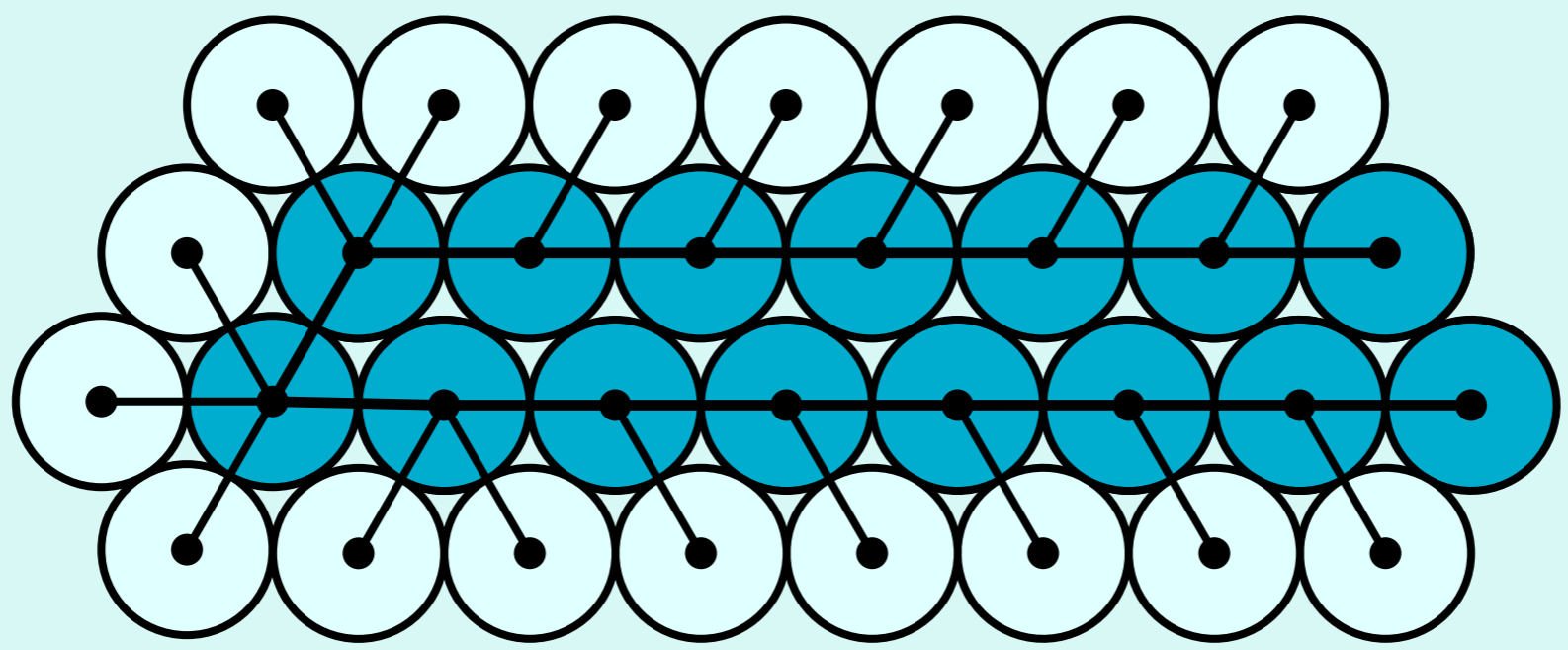
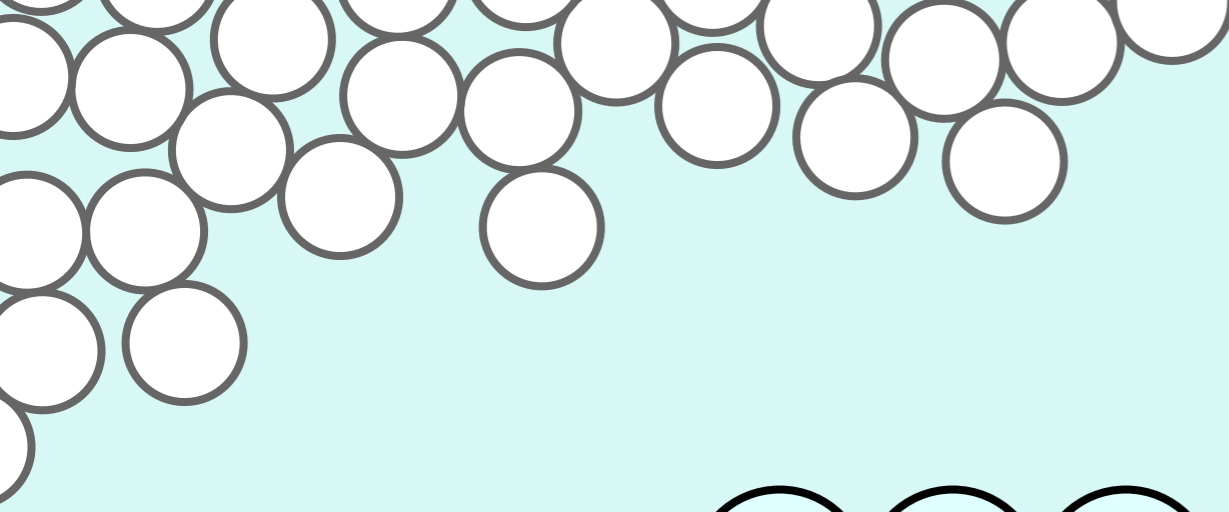
building stable polygons out of disks

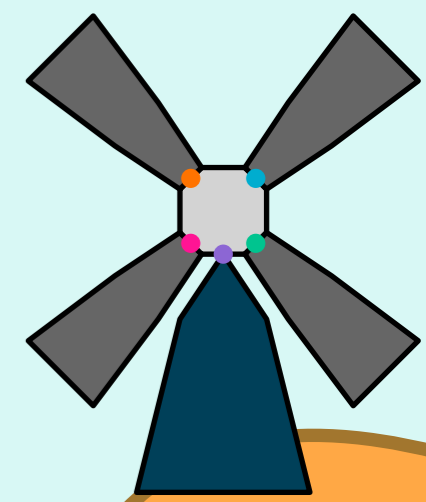
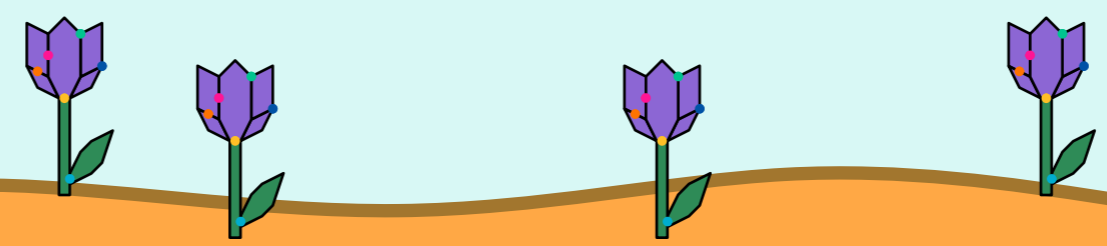
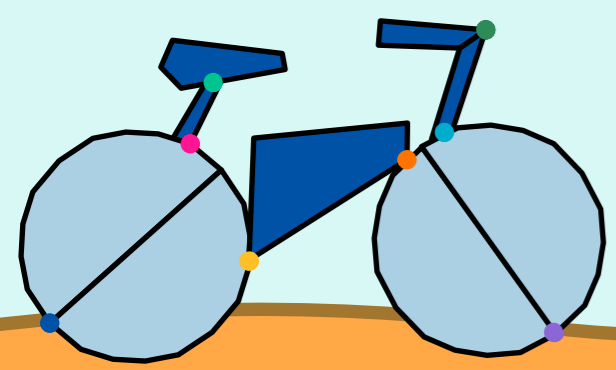
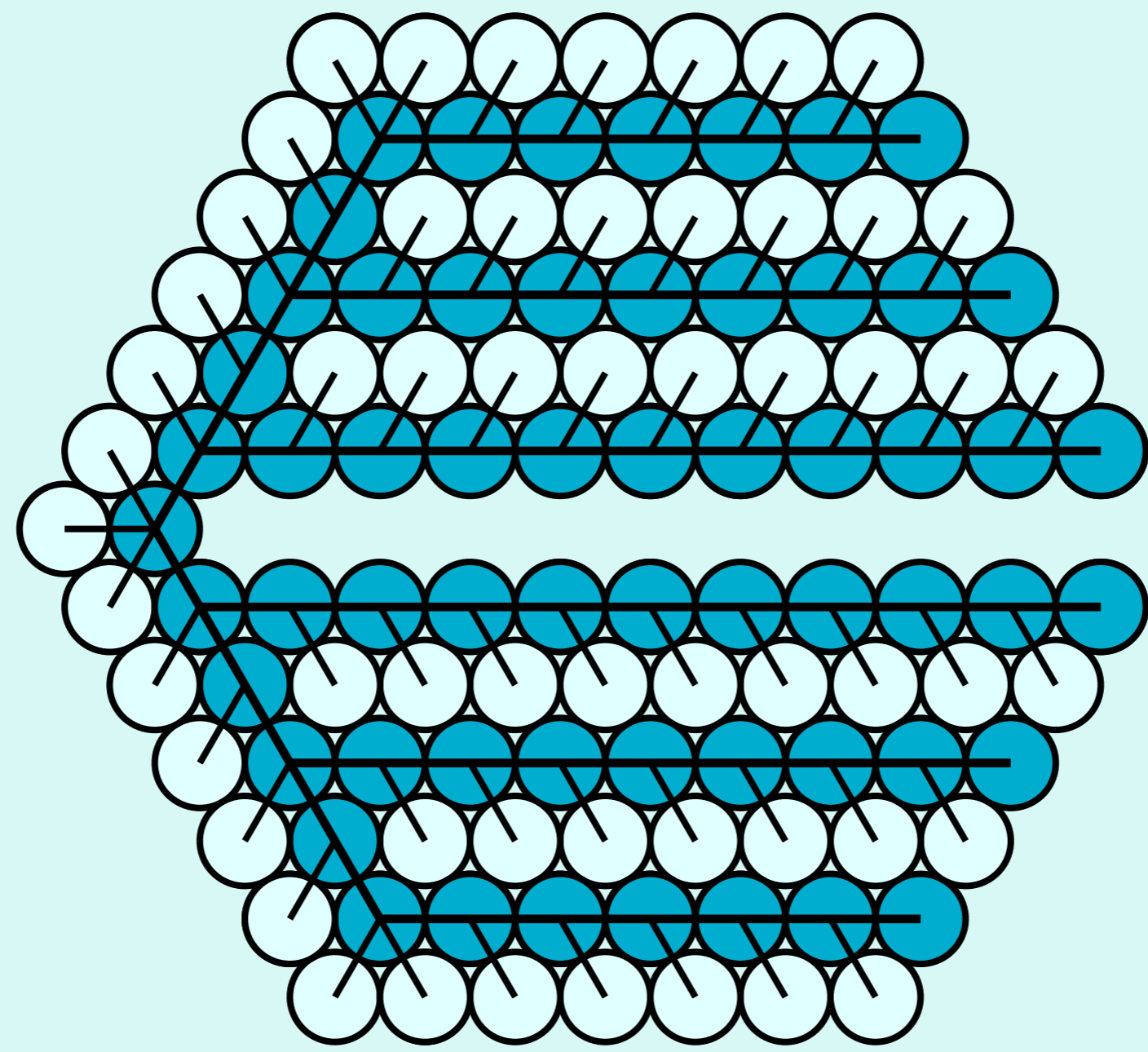
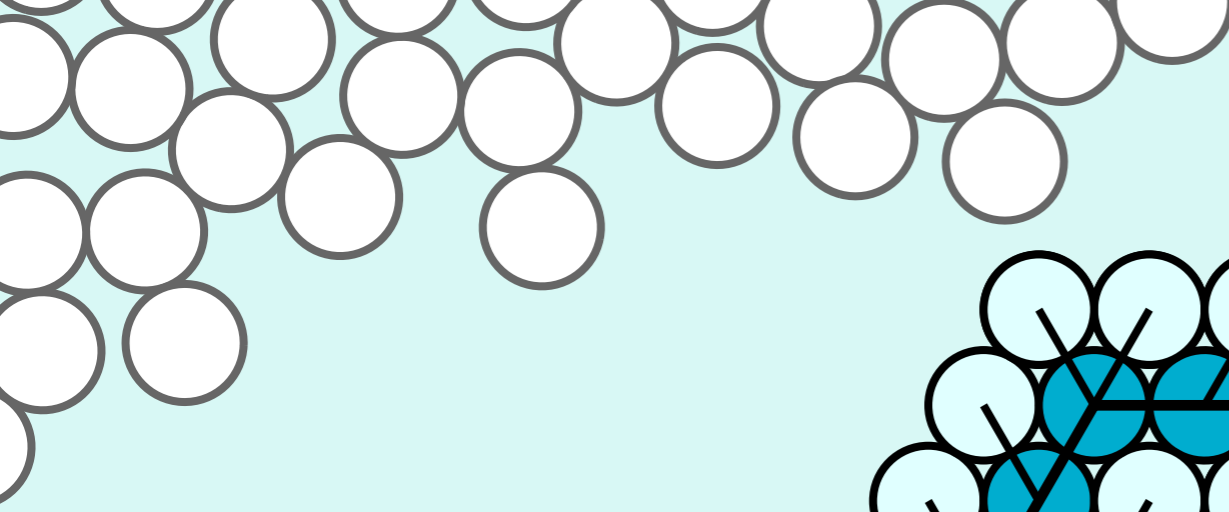


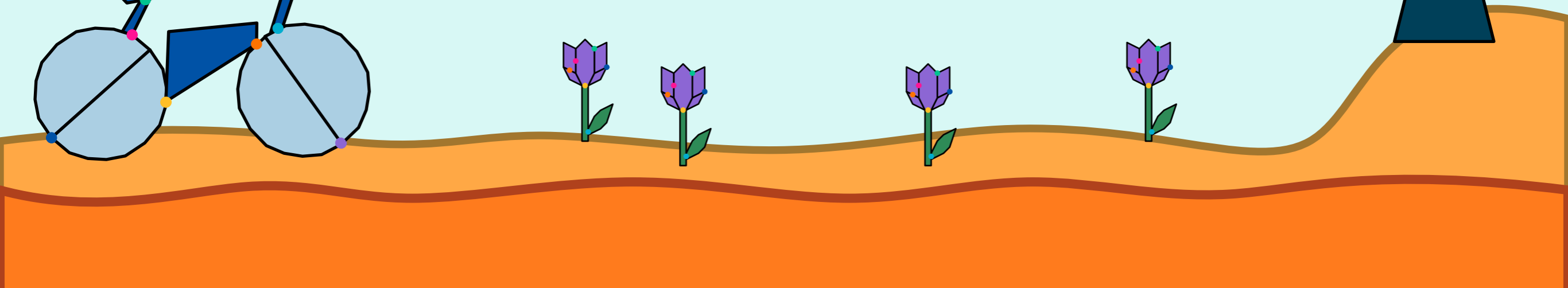
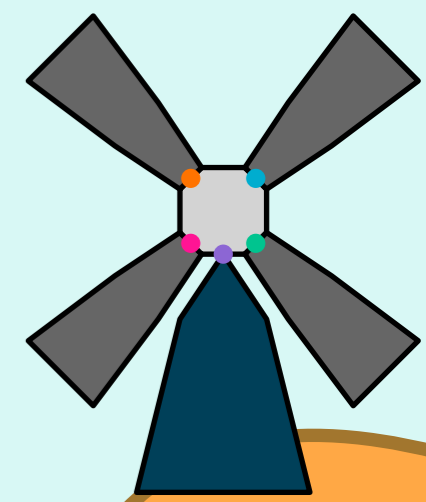
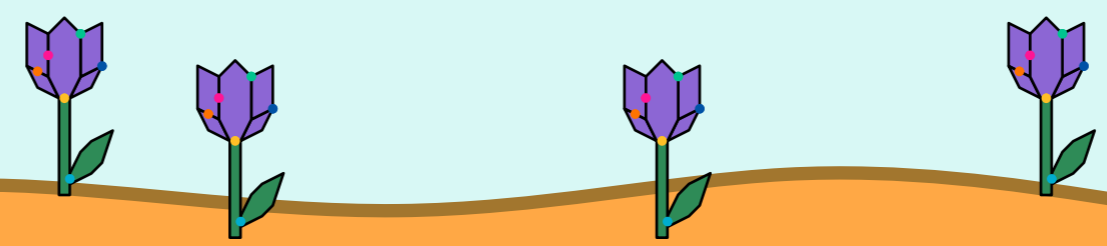
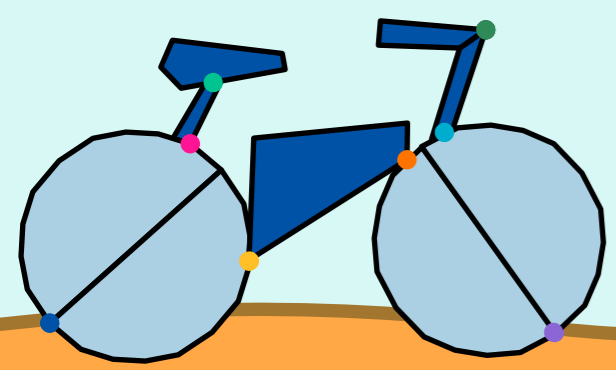
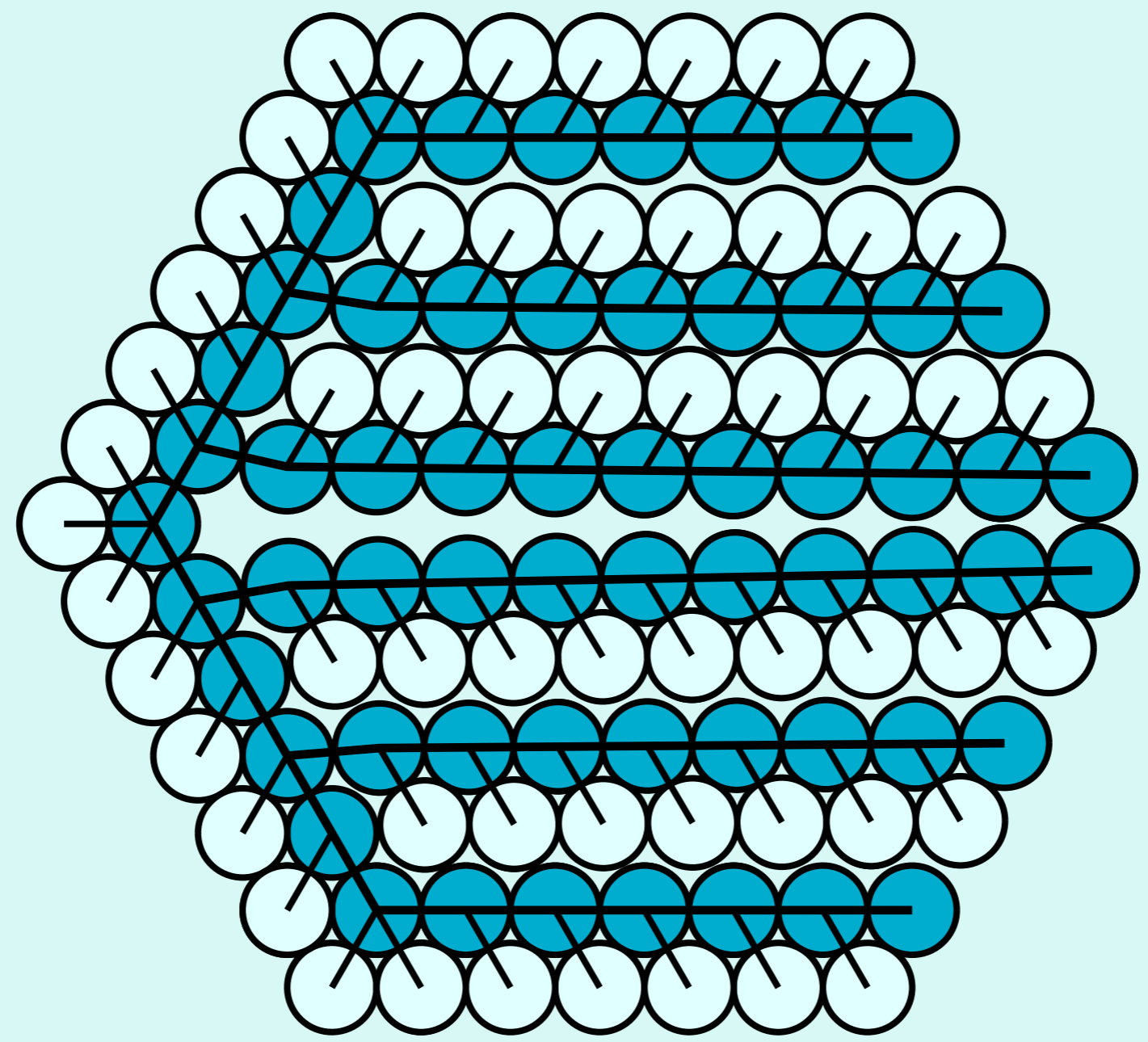
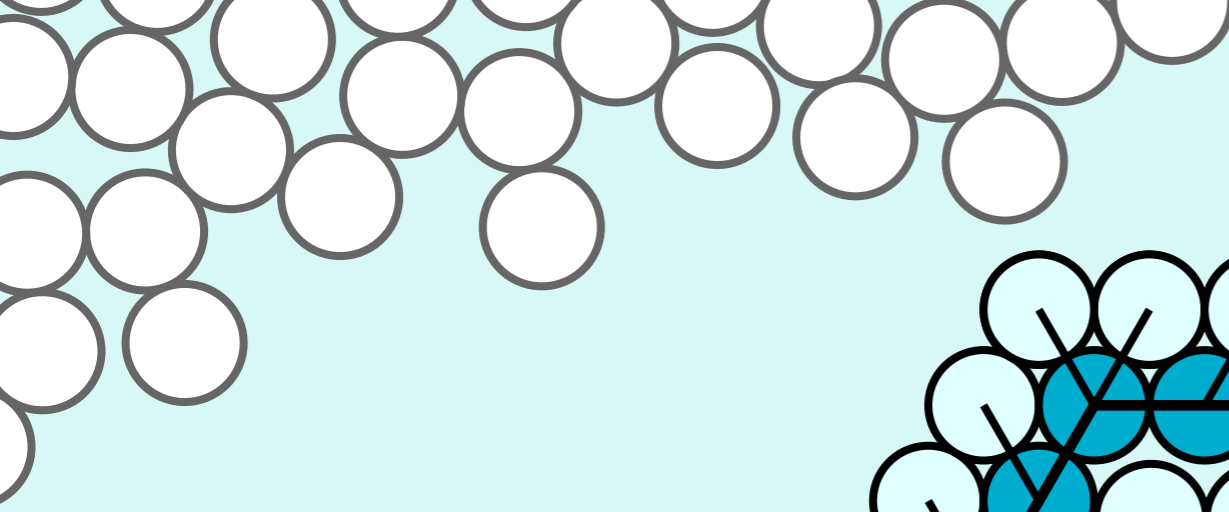


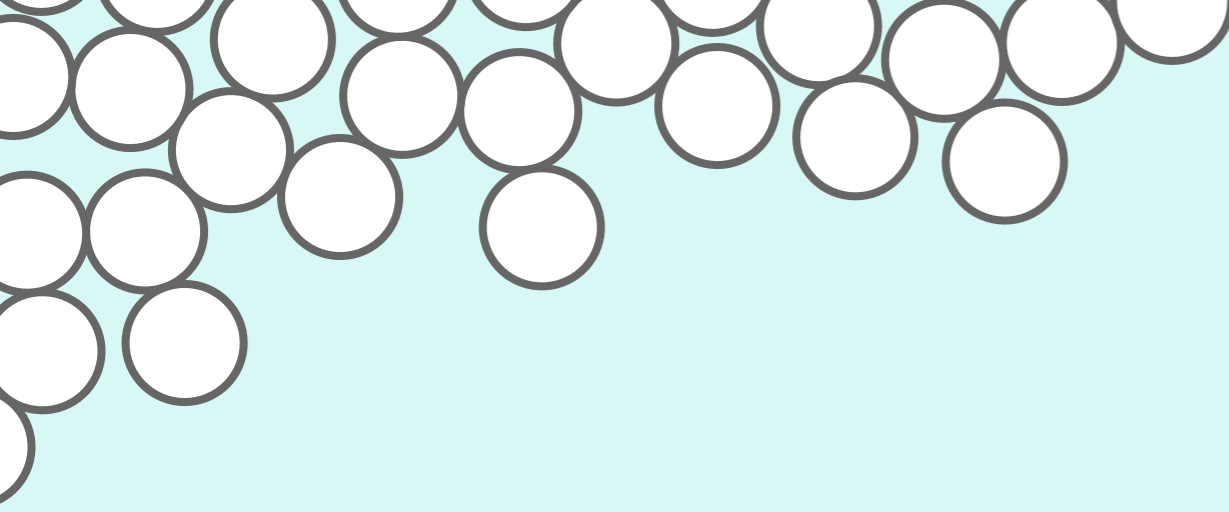




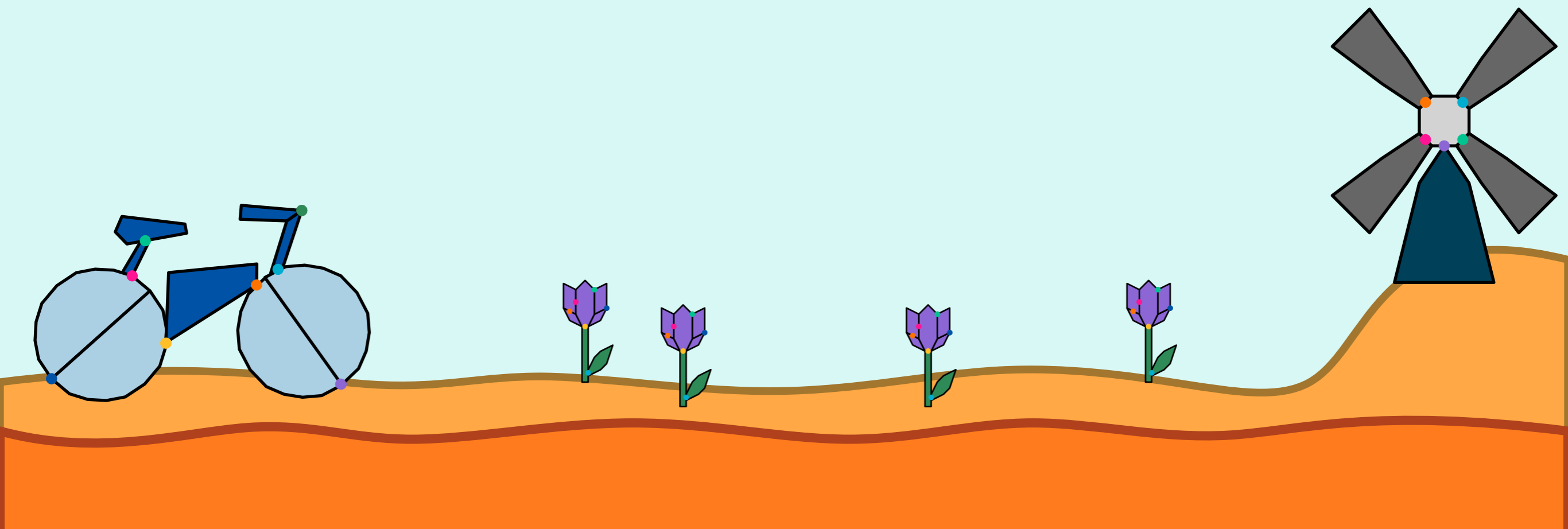


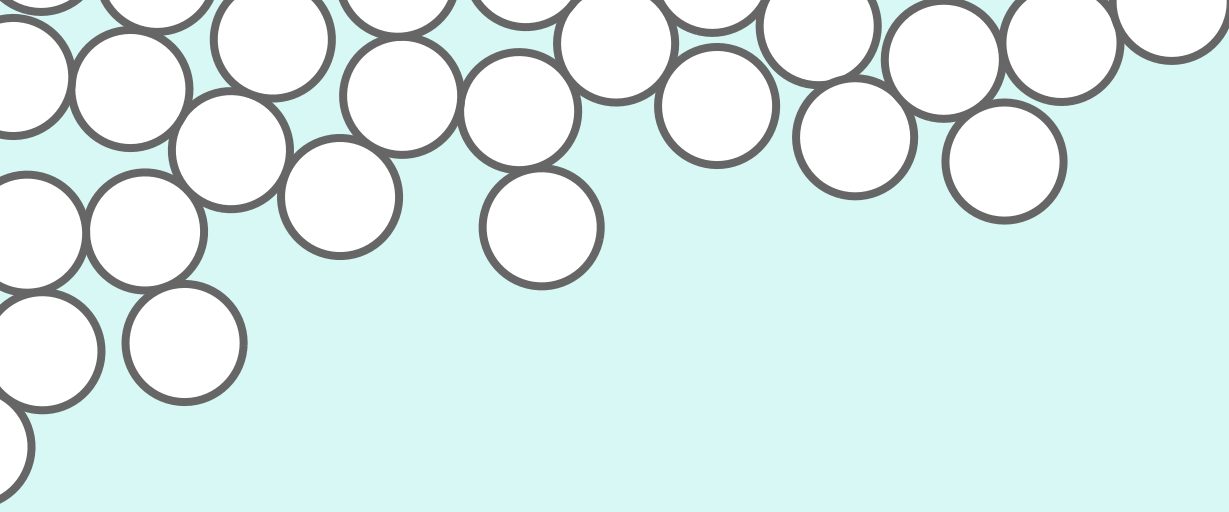




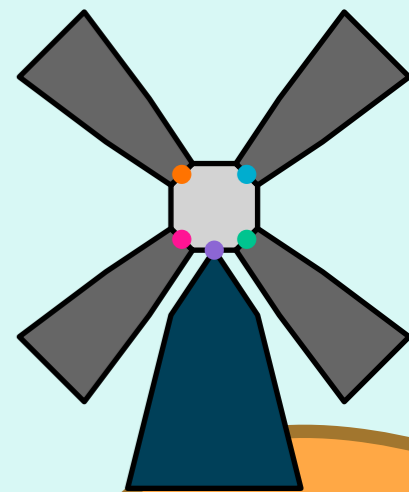
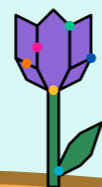
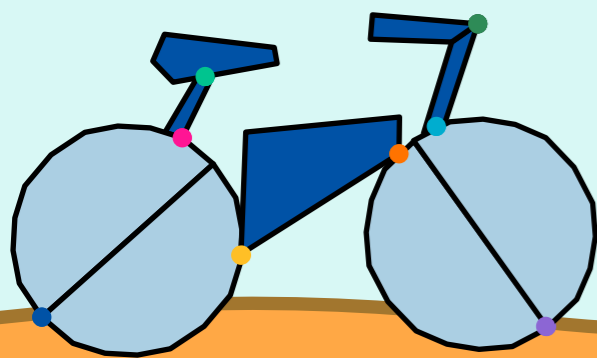


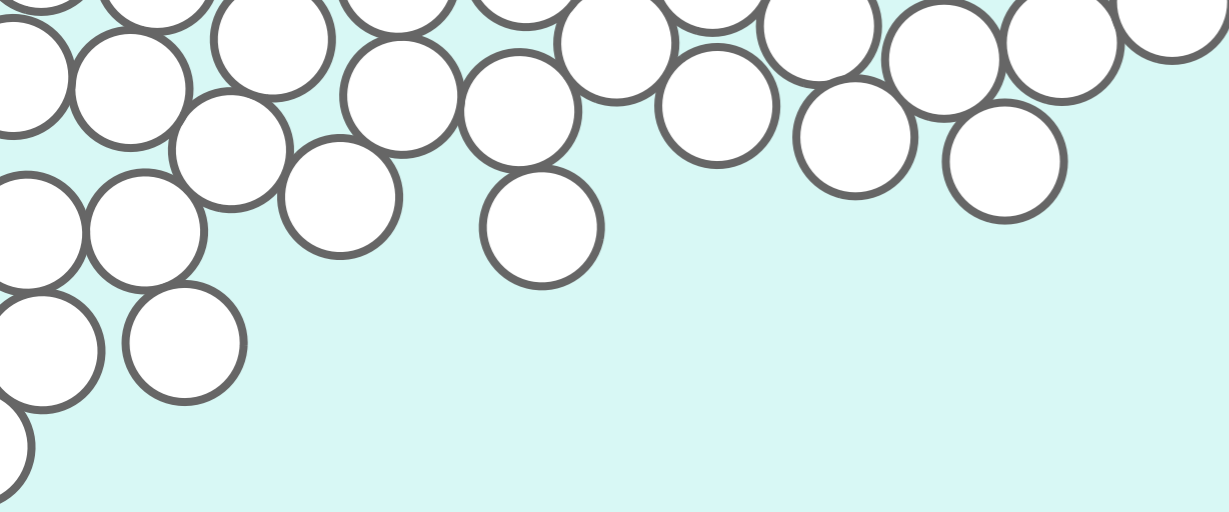
open problems





“Given a touching disk system with a **free** embedding, whose graph is a tree, can we realise this in the plane without overlap?”





thanks!

