

Teacher: L. Belateche
Class: 6th Grade Earth Science

Semester: Fall
Date: 2012

	week:0 Date: Aug. 14 - 17	week: 1 Date: Aug. 20-24	week: 2 Date: Aug.27 - 31	week: 3 Date: Sept. 4 - 7
Topics	<ul style="list-style-type: none"> Scientific Method Ch. 1, Lesson 1 Introduction to Earth's Ecosystems 	<ul style="list-style-type: none"> Ch. 1, Lesson 2, Photosynthesis: Basic Process of Life 	<ul style="list-style-type: none"> Ch. 1, Lesson 3 Microscopic Organisms on Earth 	<ul style="list-style-type: none"> Ch. 1, Lesson 4, Earth's Food Chains, Webs and Pyramids
Standards	<ul style="list-style-type: none"> 6 IE 7.a.,7,d,7.e., 6 LS 5.e. 	<ul style="list-style-type: none"> 6 LS 5.a 	<ul style="list-style-type: none"> 6 LS 5. a. 	<ul style="list-style-type: none"> 6 LS 5.b, 5.c., 7.d.
Lecture Notes	<ul style="list-style-type: none"> Scientific Method Diagram Vocabulary and Key Concepts 	<ul style="list-style-type: none"> Vocabulary and Key Concepts 	<ul style="list-style-type: none"> Vocabulary and Key Concepts 	<ul style="list-style-type: none"> Vocabulary and Key Concepts
Readings	<ul style="list-style-type: none"> 23 - 36 	<ul style="list-style-type: none"> 42 - 53 	<ul style="list-style-type: none"> 56 - 64 	<ul style="list-style-type: none"> 67 - 77
Homework	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Outline Lesson 3 Research an animal and its prey/predators 	<ul style="list-style-type: none"> Student food chain log Outline Lesson 4
Labs & Projects	<ul style="list-style-type: none"> homemade volcano 	<ul style="list-style-type: none"> observe plants and plant parts Look at elodea under microscope Look at stomata under microscope 	<ul style="list-style-type: none"> cellular respiration with yeast observe microscopic organisms under the microscope 	<ul style="list-style-type: none"> Create a model food chain using a soda bottle, yarn and photographs Food chain meal in class
AV, Internet	<ul style="list-style-type: none"> Video of volcanic eruptions 	<ul style="list-style-type: none"> Research different ecosystems 	<ul style="list-style-type: none"> Use internet to see a greater variety of microscopic organisms 	<ul style="list-style-type: none"> Brain pop Food Webs
Demos	<ul style="list-style-type: none"> Model outline of Lesson 1 	<ul style="list-style-type: none"> Model outline of Lesson 2 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
Special	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Plant seeds in pots 	<ul style="list-style-type: none"> Observe plant growth 	<ul style="list-style-type: none"> Observe plant growth
Tests	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Quiz on vocabulary for the week 	<ul style="list-style-type: none"> Quiz on vocabulary for the week 	<ul style="list-style-type: none"> Quiz on vocabulary for the week
Points	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 10 	<ul style="list-style-type: none"> 10 	<ul style="list-style-type: none"> 10

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	week: 4 Date: Sept. 10 - 14	week: 5 Date: Sept. 17 - 21	week: 6 Date: Sept. 24 - 28	week: 7 Date: Oct. 1 - 5
Topics	<ul style="list-style-type: none"> Ch. 1, Lesson 5, Earth's Cycles for Life 	<ul style="list-style-type: none"> Ch. 1 Review and Prep for Test 	<ul style="list-style-type: none"> Ch. 2, Lesson 1, Earth's Land Biomes 	<ul style="list-style-type: none"> Ch. 2, Lesson 2, Earth's Water Ecosystems
Standards	<ul style="list-style-type: none"> 6 LS 5.b, 7.e. 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 6 LS 5.d., 6 IE, 7.d. 	<ul style="list-style-type: none"> 6 LS 5.d.
Lecture Notes	<ul style="list-style-type: none"> Vocabulary, Key Concepts 	<ul style="list-style-type: none"> Vocabulary, Key Concepts 	<ul style="list-style-type: none"> Vocabulary, Key Concepts 	<ul style="list-style-type: none"> Vocabulary, Key Concepts
Readings	<ul style="list-style-type: none"> 82 - 88 	<ul style="list-style-type: none"> Lesson reviews 37, 51, 63, 77, 89, Ch. Review 92 - 95 	<ul style="list-style-type: none"> 101 - 107 	<ul style="list-style-type: none"> 119 - 126
Homework	<ul style="list-style-type: none"> List all recyclable materials at home Outline Lesson 5 	<ul style="list-style-type: none"> Study for Chapter Test 	<ul style="list-style-type: none"> Outline Lesson 1 	<ul style="list-style-type: none"> Outline of Lesson 2
Labs & Projects	<ul style="list-style-type: none"> Water cycle experiment Begin small compost project 	<ul style="list-style-type: none"> Jeopardy style game for key concept review 	<ul style="list-style-type: none"> Group Work – each group chooses a biome and creates a poster and presentation Create a terrarium 	<ul style="list-style-type: none"> Ocean food chain video on-line Create an aquarium
AV, Internet	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Brain pop 	<ul style="list-style-type: none"> Use internet to research biomes, animals and plants 	<ul style="list-style-type: none">
Demos	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
Special	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Field trip to Long Beach Aquarium or Malibu Creek
Tests	<ul style="list-style-type: none"> Vocabulary quiz 	<ul style="list-style-type: none"> Test on Chapter 1 	<ul style="list-style-type: none"> Vocabulary quiz 	<ul style="list-style-type: none"> Vocabulary quiz
Points	<ul style="list-style-type: none"> 10 	<ul style="list-style-type: none"> 100 	<ul style="list-style-type: none"> 10 	<ul style="list-style-type: none"> 10

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	week: 8 Date: Oct. 8 - 12	week: 9 Date: Oct. 15 - 19	week: 10 Date: Oct. 22 - 26	week: 11 Date: Oct. 29 - Nov. 2
Topics	<ul style="list-style-type: none"> Ch. 2, Lesson 3, Ecosystems in California 	<ul style="list-style-type: none"> Ch. 2, Lesson 3 Ecosystems in California Chapter Review and Test 	<ul style="list-style-type: none"> Ch. 3, Lesson 1, Heat Energy 	<ul style="list-style-type: none"> Ch 2, Lesson 2, Waves
Standards	<ul style="list-style-type: none"> 6 LS 5.e., 6 IE 7.f. 	<ul style="list-style-type: none"> 6 LS 5.e. 	<ul style="list-style-type: none"> 6 PS, 3.a., 6 IE 7.c.d. 	<ul style="list-style-type: none"> 6 PS 3.a.
Lecture Notes	<ul style="list-style-type: none"> Vocabulary, Key Concepts 	<ul style="list-style-type: none"> Vocabulary, Key Concepts 	<ul style="list-style-type: none"> Vocabulary, Key Concepts 	<ul style="list-style-type: none"> Vocabulary, Key Concepts
Readings	<ul style="list-style-type: none"> 133 - 140 	<ul style="list-style-type: none"> 141 - 146, 115, 127, 147, 150 - 156 	<ul style="list-style-type: none"> 164 - 170 	<ul style="list-style-type: none"> 176-182
Homework	<ul style="list-style-type: none"> Outline Lesson 3 	<ul style="list-style-type: none"> Study for Test 	<ul style="list-style-type: none"> Outline Lesson 1 	<ul style="list-style-type: none"> Outline Lesson 2
Labs & Projects	<ul style="list-style-type: none"> Make a model 3-d map of California using salt clay. Show the different ecosystems in CA. 	<ul style="list-style-type: none"> Owl pellet dissection Create food web for owl living in CA Jeopardy review game 	<ul style="list-style-type: none"> Measuring heat flow in water Measuring heat absorption of earth materials and water 	<ul style="list-style-type: none"> Observe ropes and slinkys to see wave motion move through an object
AV, Internet	<ul style="list-style-type: none"> Video on biomes 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
Demos	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
Special	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
Tests	<ul style="list-style-type: none"> Vocabulary quiz 	<ul style="list-style-type: none"> Chapter Test 	<ul style="list-style-type: none"> Vocabulary quiz 	<ul style="list-style-type: none"> Vocabulary quiz
Points	<ul style="list-style-type: none"> 10 	<ul style="list-style-type: none"> 100 	<ul style="list-style-type: none"> 10 	<ul style="list-style-type: none"> 10

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	week: 12 Date: Nov. 5 – 9	week: 13 Date: Nov. 12 - 16	week: 14 Date: Nov. 19 - 21 (Thanksgiving holiday)	week: 15 Date: November 26 - 30
Topics	<ul style="list-style-type: none"> Ch. 3, Lesson 3, Fuels: Our Major Energy Source 	<ul style="list-style-type: none"> Ch. 3, Lesson 4, Heat Transfer in Solids and Fluids 	<ul style="list-style-type: none"> Chapter 3 Test Review 	<ul style="list-style-type: none"> Chapter 1 Review for Midterm Exam
Standards	<ul style="list-style-type: none"> 6 PS, 3.d. 	<ul style="list-style-type: none"> 6 PS 3.c. 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
Lecture Notes	<ul style="list-style-type: none"> Vocabulary and Key Concepts 	<ul style="list-style-type: none"> Vocabulary and Key Concepts 	<ul style="list-style-type: none"> Vocabulary, Key Concepts 	<ul style="list-style-type: none"> Chapter Outlines, Vocabulary, Key Concepts
Readings	<ul style="list-style-type: none"> 188 - 194 	<ul style="list-style-type: none"> 199 - 204 	<ul style="list-style-type: none"> 171, 183, 195. 205, 208 - 211 	<ul style="list-style-type: none"> 37, 51, 63, 77, 89, Chapter 1 Review 92 - 95
Homework	<ul style="list-style-type: none"> Outline Lesson 3 	<ul style="list-style-type: none"> Outline Lesson 4 	<ul style="list-style-type: none"> Study for Chapter Test 	<ul style="list-style-type: none"> Study for Midterm Exam
Labs & Projects	<ul style="list-style-type: none"> Make solar ovens Make UV bracelets 	<ul style="list-style-type: none"> Heat transfer with water and sand 	<ul style="list-style-type: none"> Jeopardy game review 	<ul style="list-style-type: none"> Observe plant growth and plant parts Observe composter Play the food web game
AV, Internet	<ul style="list-style-type: none"> Video on various types of green energy being used in California 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
Demos	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
Special	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
Tests	<ul style="list-style-type: none"> Vocabulary quiz 	<ul style="list-style-type: none"> Vocabulary quiz 	<ul style="list-style-type: none"> Chapter Test 	<ul style="list-style-type: none">
Points	<ul style="list-style-type: none"> 10 	<ul style="list-style-type: none"> 10 	<ul style="list-style-type: none"> 100 	<ul style="list-style-type: none">

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	week: 16 Date: Dec. 3 - 7	week: 17 Date: Dec. 10 - 15	week: 18 Winter Break Date: Dec. 17 - 21	week: 19 Winter Break Date: Dec. 22 - 28
Topics	<ul style="list-style-type: none"> Ch 2 Review for Midterm Exam 	<ul style="list-style-type: none"> Ch. 3 Review for Midterm Exam 	•	•
Standards	•	•	•	•
Lecture Notes	<ul style="list-style-type: none"> Chapter Outlines, Vocabulary, Key Concepts 	<ul style="list-style-type: none"> Chapter Outlines, Vocabulary, Key Concepts 	•	•
Readings	<ul style="list-style-type: none"> 115, 127, 147, 150 - 151 	<ul style="list-style-type: none"> 171,183, 195, 205, 208 - 209, 	•	•
Homework	<ul style="list-style-type: none"> Review Lesson Outlines for Chapter 2 Study for Midterm Exam 	<ul style="list-style-type: none"> Review Lesson Outlines for Chapter 3 Study for Midterm Exam 	•	•
Labs & Projects	<ul style="list-style-type: none"> Observe small compost bin Observe terrarium and aquarium Create food web for both terrarium and aquarium 	<ul style="list-style-type: none"> Review heat and heat transfer with hands on labs Review waves with water experiments 	•	•
AV, Internet	<ul style="list-style-type: none"> Internet as needed for review 	<ul style="list-style-type: none"> Internet as needed for review 	•	•
Demos	•	•	•	•
Special	•	•	•	•
Tests	•	<ul style="list-style-type: none"> Midterm Exam 	•	•
Points	•	<ul style="list-style-type: none"> 300 	•	•

Lori Belateche

Earth Science

Grade 6

Topic: Photosynthesis: Basic Process of Life

Monday:

Agenda:

- Copy vocabulary for this week into notebook (5 minutes)
- Get into lab groups
- Review the written handout with your lab group and perform lab (25 minutes)
- Clean up after lab is finished (5 minutes)
- Review the lab results with the class (15 minutes)

Standards and Objectives:

Standards: 6 Life Sciences 5.a. Students know energy enters ecosystems at sunlight and is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.

Learning Objectives for Content: Students will be able to identify and examine plant parts. They will draw and label a plant diagram.

Level of reasoning: Knowledge and application

Learning Objectives for Academic Language: Students will use the vocabulary for the week correctly in their lab reports and during class discussion.

Prerequisite Knowledge: The first week of class the concept of Ecosystems was covered along with the Scientific Method. Vocabulary and key concepts from those classes will be utilized.

Learning Activities, Assessment and Resources:

- Students will work in groups of four to examine plants and identify all the plant parts.
- Students will draw a detailed diagram in their science notebooks with all the plant parts labeled.
- Students will place a stalk of celery in a cup of colored water. The results of this experiment will be observed on Wednesday.
- Students who are working at a low level and need help will have individual help from the teacher or a student who finishes early.
- Students who are working above grade level or finish first, will make a large, hand drawn poster of a plant with labels to hang on the wall in the classroom.
- The teacher will circulate throughout the room to ensure that all groups are working well together and following the lab procedures safely. The teacher will also check the notebooks to ensure that the drawings are labeled properly.

Materials and Equipment:

- Small potted plants in soil (purchased by me)
- Magnifying lenses

- Celery stalks with leaves attached, food coloring, cups

Rubric: See Last Page

Outline of Lesson:

- Students copy vocabulary words for the week into their notebooks.
- Make the connection that abiotic factors (sunlight, water, air) are converted into biotic factors (producers and consumers) through photosynthesis.
- **Activity:** Students will conduct a hands-on lab. They will observe all the plant parts, draw and label a diagram in their notebooks. They will also begin a lab (celery in colored water) that will be observed on Wednesday.
- **Lecture/discussion:** After the students complete their lab (after about 25 minutes) and have cleaned up after themselves, we will begin the lecture and discussion.
- **Plants have structures including the roots, the stem, and the leaves. Roots:** anchor and provide water, **Stems:** support leaves and flowers, tubes that move water and food throughout plant, **Leaves:** contain chloroplasts and chlorophyll to make food.
- **Reading:** use the recording that accompanies the text, or if students prefer, they can read aloud from the text. We will read pages 42 – 45.
- Review the vocabulary. Review the definition for each word. Every Friday the students will have a brief quiz on the scientific vocabulary for the week.

Summary: Plants have structures (roots, stem, leaves) and each structure has a function. Plants take the abiotic factors learned about in Lesson 1 and convert them into a biotic factor through the process of photosynthesis.

Tuesday:

Agenda:

- Review vocabulary in notebook (2 minutes)
- Get in lab groups
- Review lab instructions with your lab group and conduct the small lab (10 minutes)
- Clean up and return to your desks (5 minutes)
- Learn how to outline a science lesson from the book (25 minutes)

Standards and Objectives:

Standards: 6 Life Sciences 5.a. Students know energy enters ecosystems at sunlight and is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.

Learning Objectives for Content: Students will plant several seeds in pots and watch the plants grow over time.

Level of reasoning: Knowledge, comprehension and application

Learning Objectives for Academic Language: Students will use the vocabulary for the week correctly in their lab reports and during class discussion.

Prerequisite Knowledge: The first week of class the concept of Ecosystems was covered along with the Scientific Method. Vocabulary and key concepts from those classes will be utilized.

Learning Activities, Assessment and Resources:

- Students will choose several seeds and plant them in a small pot with soil. They will water the soil and place the pot on the windowsill. Students will make an entry into their science notebook.
- Students who are working at a low level and need help will have individual help from the teacher or a student who finishes early.
- The teacher will circulate throughout the room to ensure that all groups are working well together and following the lab procedures safely. The teacher will also check the notebooks to ensure that the drawings are labeled properly.

Materials and equipment: Seeds, potting soil, small pots

Rubric: See Last Page

Outline of Lesson:

- Students will plant seeds in soil. Students will observe that plants increase in mass and volume as they grow.
- **Activity:** Students will conduct a hands-on lab. They will plant several seeds in small pots with potting soil.
- **Lecture/discussion:** After the students complete their lab (after about 10 minutes) and have cleaned up after themselves, we will begin the lecture and discussion.
- **Seeds:** contain a plant embryo. Root emerges first. Only water is needed for seed to germinate.
- **Reading:** Pages 46 - 51

Summary: Plants have structures (roots, stem, leaves) and each structure has a function. All flowering plants begin as a seed. The seed needs water to germinate. After the seed germinates, plants need water, nutrients from the soil, carbon dioxide and sunlight in order to grow and make food.

Wednesday

Agenda:

- Review vocabulary (2 minutes)
- Get into lab groups
- Review lab instructions and perform small lab (10 minutes)
- Clean-up and return to your desks (5 minutes)
- Learn how to use a microscope and prepare slides in preparation for Thursday's lab (25 minutes)

Standards and Objectives:

Standards: 6 Life Sciences 5.a. Students know energy enters ecosystems at sunlight and is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.

Learning Objectives for Content: Students will recognize that plants have “tubes” for transporting water and food throughout the plant. They will identify the tubes that carry water up from the roots as the Xylem and the tubes that carry glucose away from the leaves as the Phloem.

Level of reasoning: Knowledge, application and analysis

Learning Objectives for Academic Language: Students will use the vocabulary for the week correctly in their lab reports and during class discussion.

Prerequisite Knowledge: The first week of class the concept of Ecosystems was covered along with the Scientific Method. Vocabulary and key concepts from those classes will be utilized.

Learning Activities, Assessment and Resources:

- Students will observe the celery that was placed in colored water on Monday. Students will recognize the “tubes” that are carrying the colored water up the stem of the celery as Xylem. Students will infer that there are similar tubes that carry glucose from the leaves to the rest of the plant. Those tubes are Phloem. Students will make an entry into their science journal.
- Students will inspect the parts of a microscope and learn how to operate the microscope in preparation for the lesson on Thursday. Students will observe the process for preparing slides.
- Students who are working at a low level and need help will have individual help from the teacher or a student who finishes early.
- Students who are working above grade level or finish first, will add the details of xylem and phloem to the hand drawn poster of a plant that hangs on the wall in the classroom.
- The teacher will circulate throughout the room to ensure that all groups are working well together and following the lab procedures safely. The teacher will also check the notebooks to ensure that the drawings are labeled properly.

Materials and equipment: Celery stalks, colored water, and cups from Monday’s lab. Microscopes (1 for each 2 students or 2 per lab group)

Rubric: See last page.

Outline of Lesson:

- Students review vocabulary words for their quiz on Friday.
- Review the parts of a plant that students could observe from Monday’s lab.
- Students should now be able to observe an additional part of a plant – the xylem. Students will infer that there are additional tubes for transporting glucose from the leaves to the rest of the plants.
- **Activity:** Students will conduct a hands-on lab. They observe the colored structures in the celery that transported water up the stem.
- **Lecture/discussion:** After the students complete their lab (after about 10 minutes) and have cleaned up after themselves, we will begin the lecture and discussion. Students will understand that each structure in the plant has a specific function. The function of the tubes in vascular plants is to transport water and nutrients throughout the plant.
- The teacher will use a microscope and illustrate the parts of the microscope and how to use a microscope. Students will practice focusing and using the microscope with some pre-prepared slides of plants.

Summary: Plants have structures (roots, stem, leaves) and each structure has a function. All vascular plants have tubes that transport water and nutrients throughout the plant.

Thursday

Agenda

- Review vocabulary (2 minutes)
- Get into lab groups
- Follow lab instructions and conduct lab (25 minutes)
- Clean up and return to your desks (5 minutes)
- Review plant cell structures and function. Especially focus on chloroplasts and their role in photosynthesis.

Standards and Objectives:

Standards: 6 Life Sciences 5.a. Students know energy enters ecosystems at sunlight and is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.

Learning Objectives for Content: Students will identify the chloroplasts in the plant cell when viewed through the microscope. Students will sketch the plant cell in their science notebooks and label the chloroplasts.

Level of reasoning: Knowledge, comprehension and application

Learning Objectives for Academic Language: Students will use the vocabulary for the week correctly in their lab reports and during class discussion.

Prerequisite Knowledge: The first week of class the concept of Ecosystems was covered along with the Scientific Method. Vocabulary and key concepts from those classes will be utilized.

Learning Activities, Assessment and Resources:

- Students will observe the elodea leaves under the microscope. Students will identify the chloroplasts in the plant cells and associate them with the process of photosynthesis.
- Students will sketch the plant cell in their science notebook and label their diagram.
- Students who are working at a low level and need help will have individual help from the teacher or a student who finishes early.
- Students who are working above grade level or finish first will create a poster of a plant cell and label the chloroplasts. They will also add the equation for photosynthesis to the poster.
- The teacher will circulate throughout the room to ensure that all groups are working well together and following the lab procedures safely. The teacher will also check the notebooks to ensure that the drawings are labeled properly.

Materials and equipment: microscopes (1 microscope for each 2 students), elodea plants, microscope slides, cover slips

Outline of Lesson:

- Students review vocabulary words for their quiz on Friday
- Students conduct the laboratory and observe the chloroplasts in the elodea leaves. Sometimes the chloroplasts can be observed moving in the cell.

- Students draw the plant cell and the chloroplasts in their science notebooks.
- **Activity:** Students will conduct a hands-on lab. They observe the chloroplast structures in the elodea leaf.
- **Lecture/discussion:** After the students complete their lab (after about 25 minutes) and have cleaned up after themselves, we will begin the lecture and discussion. Students will understand that each structure in the plant has a specific function. The function of the chloroplasts in the leaves is to convert the sun's energy into food. This process is called photosynthesis.
- The teacher will present the equation for photosynthesis and discuss the “ingredients” needed for a plant to conduct photosynthesis,

Summary: Plants have structures (roots, stem, leaves) and each structure has a function. All plant cells have chloroplasts that convert the sun's energy into chemical energy – food. The equation for photosynthesis is: water + carbon dioxide + chloroplasts + sun's energy = glucose + oxygen.

Friday

Agenda

- Vocabulary quiz (10 minutes)
- Get into lab groups
- Follow lab instructions and conduct lab (20 minutes)
- Clean up and return to your desks (5 minutes)
- Review plant structures and function. Focus on stomata and their role in transpiration.

Standards and Objectives:

Standards: 6 Life Sciences 5.a. Students know energy enters ecosystems at sunlight and is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.

Learning Objectives for Content: Students will identify the stomata on the bottom of the leaf. Students will observe these structures on a microscope slide. Students will sketch the stomata structures in their science notebooks and label them.

Level of reasoning: Knowledge, comprehension and application

Learning Objectives for Academic Language: Students will use the vocabulary for the week correctly in their lab reports and during class discussion.

Prerequisite Knowledge: The first week of class the concept of Ecosystems was covered along with the Scientific Method. Vocabulary and key concepts from those classes will be utilized.

Learning Activities, Assessment and Resources:

- Students will observe a “cast” of the stomata under the microscope. Students will identify the stomata on the leaves and associate them with the process of transpiration.
- Students will sketch the stomata in their science notebook and label their diagram.
- Students who are working at a low level and need help will have individual help from the teacher or a student who finishes early.

- Students who are working above grade level or finish first can observe additional pre-prepared plant slides.
- The teacher will circulate throughout the room to ensure that all groups are working well together and following the lab procedures safely. The teacher will also check the notebooks to ensure that the drawings are labeled properly.

Materials and equipment: microscopes (1 microscope for each 2 students), stomata casts prepared by teacher in advance, microscope slides

Outline of Lesson:

- Class begins with the vocabulary quiz.
- Students conduct the laboratory and observe the stomata.
- Students draw the stomata in their science notebooks.
- **Activity:** Students will conduct a hands-on lab. They observe the stomata structures of the leaves.
- **Lecture/discussion:** After the students complete their lab (after about 20 minutes) and have cleaned up after themselves, we will begin the lecture and discussion. Students will understand that each structure in the plant has a specific function. The function of the stomata in the leaves is to aid in the movement of water throughout the plant (capillary action) and to allow gas (oxygen and carbon dioxide) to move in and out of the plant. The stomata can open and close (using the guard cells) to allow water to leave the plant or to keep water in the plant. This process is called transpiration.

Summary: Plants have structures (roots, stem, leaves) and each structure has a function. All leaves have stomata which regulate the amount of water that leaves the plant through transpiration.

Rubric

Science Lab Journal Entries

Diagrams	Points
Drawings are complete and labeled	10
Drawings are complete but not labeled	5
No drawing and no labels	0

Journal Entry	Points
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All entries use scientific language	10
Most entries use some scientific language	5
No entries or no use of scientific language	0

Reflection Entry	Points
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Contains a complete description of the Experiment and what was learned	10
Contains a partial description and some Of what was learned	5
No reflection entry	0