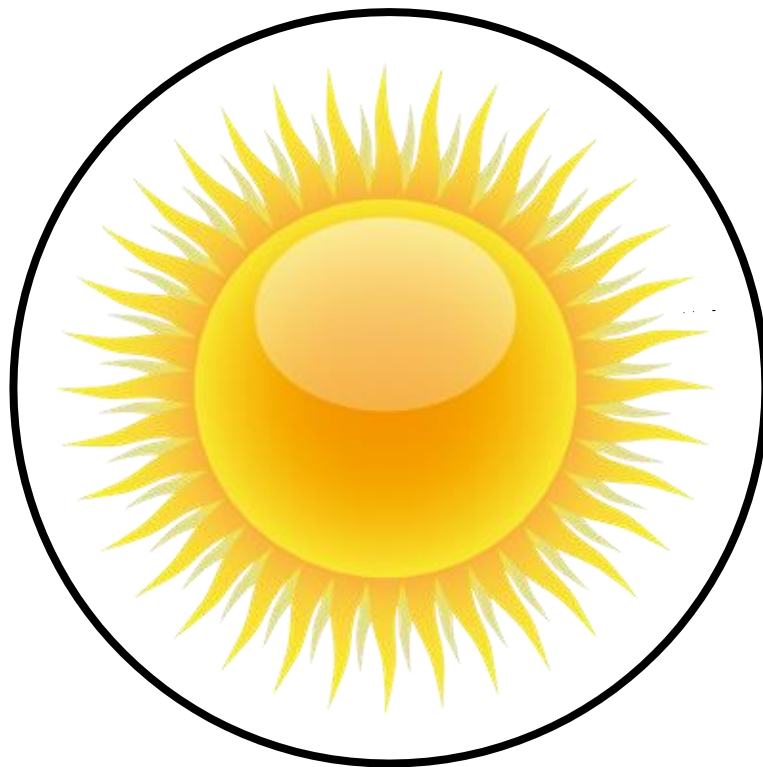


One Under the Sun: Plant and Animal Interactions with the Sun Their Environments



Scientist: _____

www.advancingSTEM.com

Grade K

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Erie 2 Chautauqua Cattaraugus BOCES

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Major support for and work on this project has been provided by the Cattaraugus-Allegany-Erie-Wyoming BOCES and Erie 2 Chautauqua Cattaraugus BOCES Region school districts. Extended thanks and appreciation to the teachers involved in the curriculum writing process.

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Sherman Central School
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Dear Families,

Learning about our natural world is an exciting part of the elementary school curriculum. As we explore, we will come back time and again to elements of STEM: Science, Technology, Engineering, and Math.

Shortly, we will begin our next topic of study, which will focus on the concept of Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment, a domain of Life Sciences.

As we explore this topic, essential understandings will include:

- observing plants to learn what they need including food, light, and shelter to live and grow
- essential needs are provided by the environment that plants and animals live in
- animals and plants change the land according to their needs
- designing a structure that could protect plants, animals, or humans from the heat of the sun.

Our final assessment for this unit will consist of a student designed structure that provides for an animal's or plant's needs that can also block out the warming of the sun, which is an Engineering Design Task. Students will be asked to create a cooling structure using various materials given to determine the best way to reduce the warming effect of sunlight.

As always, please don't hesitate to contact me with any questions.

Thanks!



Dear Scientist,

Have you ever grown your own plant before? All you need is a seed, water, and some light.

We are going to start with a seed and watch it grown into a plant.

Along the way we are going to learn about plants and how they, along with animals, use their environment to survive and thrive.

After we study plants and animals, we are going to think about how we can protect them from the heat of the sun. We will build a structure that will help keep them safe.

Let's get started.

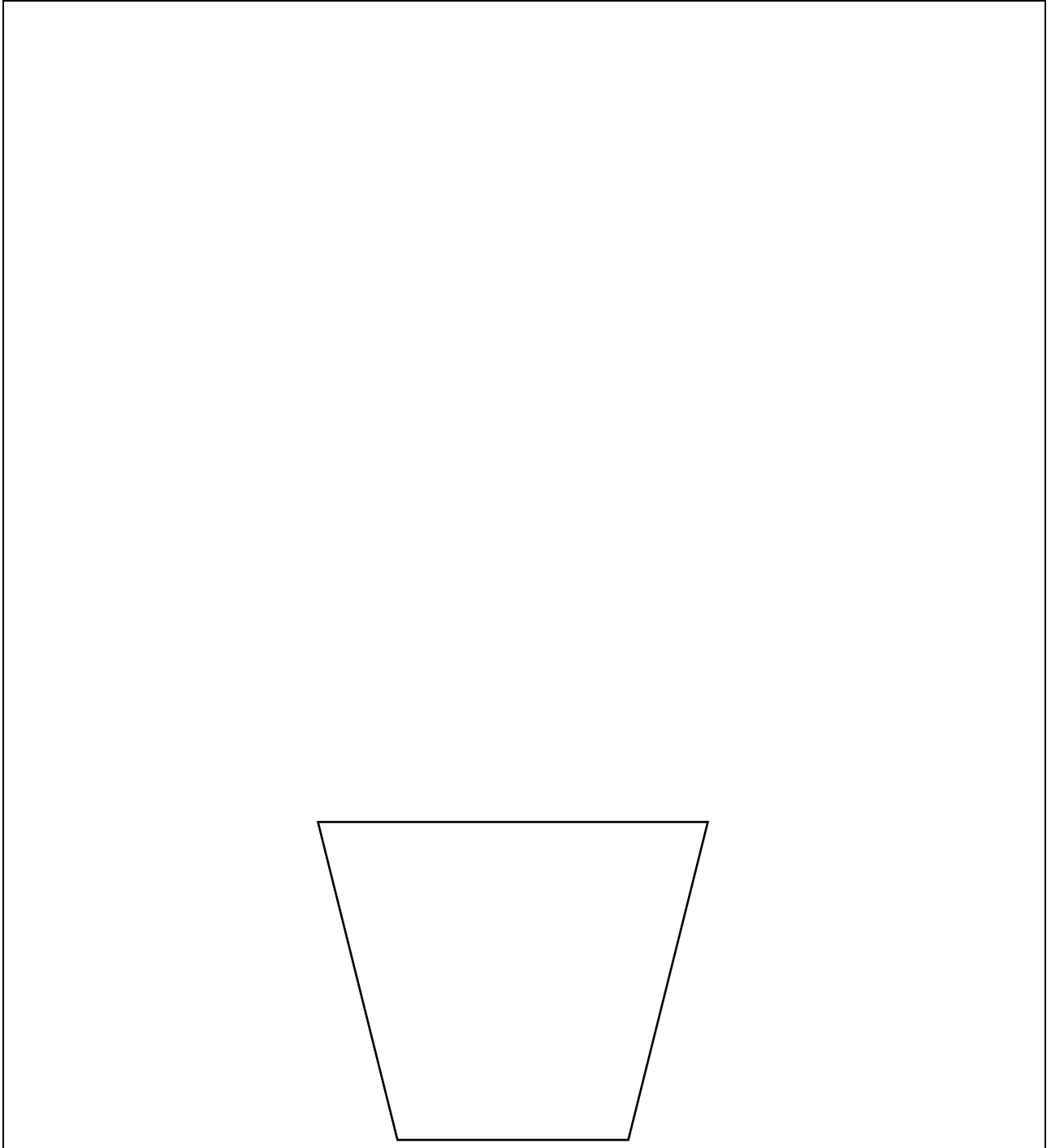
Watch My Seeds Germinate

Draw a picture of your seeds as they grow.

Day 1	Day 3	Day 5	Day 7
Day 9	Day 11	Day 13	Last Day





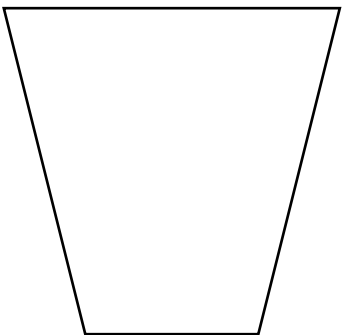
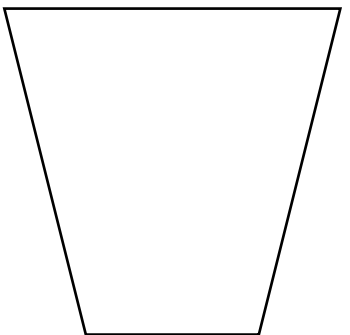
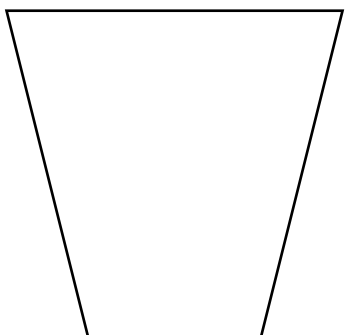
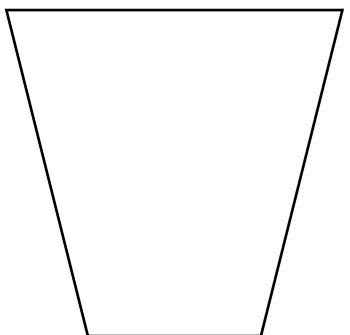
What Will My Plant Look Like?

Draw a picture of what you think your plant will look like in a week.
Be sure to include what the plant will look like below the soil.



What Do Plants Need?

Draw a prediction about each plant group.
What will the plant look like in one week?

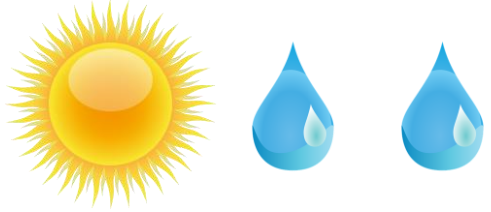


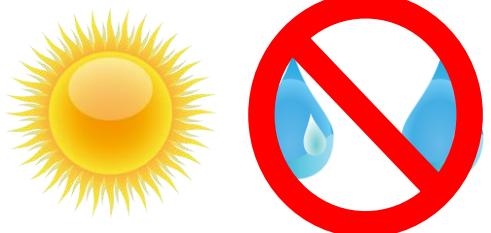





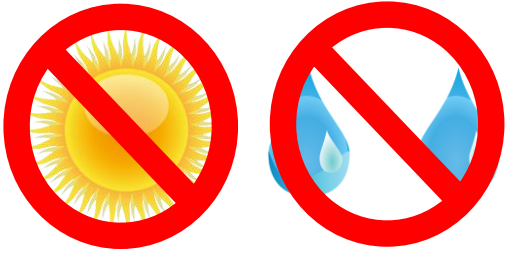


			
			

Will It Survive?

Circle YES or NO to make your prediction.

Variables:

Predictions:

	 YES	 NO
	 YES	 NO
	 YES	 NO
	 YES	 NO

Where Would You Live?



Humans, Plants, or Both?

Humans

Plants

Both

food	air	sun
water		

Ask

How can I build a structure that will help protect humans, animals, or plants from the sun?

Imagine



Engineering Design Process: Imagine

Imagine

Imagine what your structure will look like.



Engineering Design Process: Plan 1

Plan Your Shade Material

What shade material will best protect humans, animals, or plants from the heat of the sun?

index cards

Styrofoam trays

aluminum foil

wax paper

canvas cloth

nylon

felt

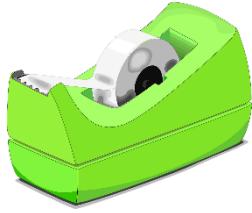



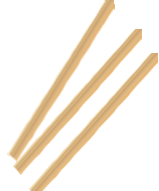
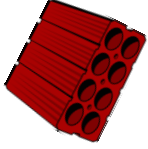

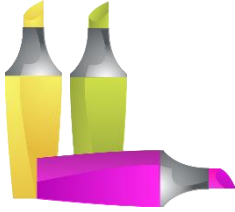


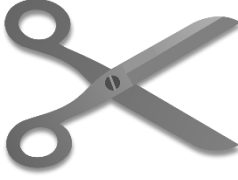

cotton fabric

construction paper

Engineering Design Process: Plan 2

Plan other Materials

What other materials will you need to create your structure?
Circle materials you think you will need.

 tape	 pipe cleaners	 glue
 straws	 toothpicks	 clay
 craft sticks	 markers	 pencil
 crayons	 scissors	 other supplies

Engineering Design Process: Create

Create

Create a drawing of your final design.

Engineering Design Process: Create

Did your original design work? YES or NO

Improve

Recreate and then make a new drawing of your final design.

Engineering Design Challenge Rubric: Student Friendly

Student will be able to...	Novice 1	Apprentice 2	Proficient 3	Distinguished 4
Engineering Design Process	Engineering Design Process (Ask, Imagine, Plan, Create, Improve) was not followed.	Some of the Engineering Design Process was followed.	All five steps of the Engineering Design Process were followed.	The Engineering Design Process was used many times and was flexible.
Session Knowledge	Knowledge from sessions was not used to create the design.	Little knowledge from sessions was used or was incorrect to create the design.	Knowledge from sessions was used correctly to create the design.	Knowledge from sessions was used correctly and further research was done to create the design.
Criteria and Improvements	Design does not follow criteria or a form of improvement.	Design does not follow all of the criteria, or the improvements are very small.	Design follows all criteria and shows improvement.	Design follows all criteria and shows many forms of improvement.
Collaboration	Team members did not work well together. The presentation is missing some of the information.	Team members needed reminded to stay on task. Most of the information is included with the presentation.	Team members shared working together. Little reminding was needed to stay on task. Presentation is complete.	Team members shared working together without teacher reminders. Presentation is complete with added material.

Glossary

germination	to start growth; sprout
habitat	the place or type of place where a plant or animal naturally or normally lives or grows
leaves	flat parts of a plant or tree that grows from the stem or branch
prediction	a statement that something might happen or is expected to happen
roots	the parts of a plant that usually grow underground
seed	the small part of a flowering plant that grows into a new plant
seedling	a young plant grown from a seed
shelter	a place or structure that gives protection against weather or danger
stem	the main part of a plant that grows up from the ground and supports the branches, leaves, flowers, or fruits that may grow from it
survive	to continue to live
variable	something that can change