Terrarium Team Activity

Lesson at a glance:

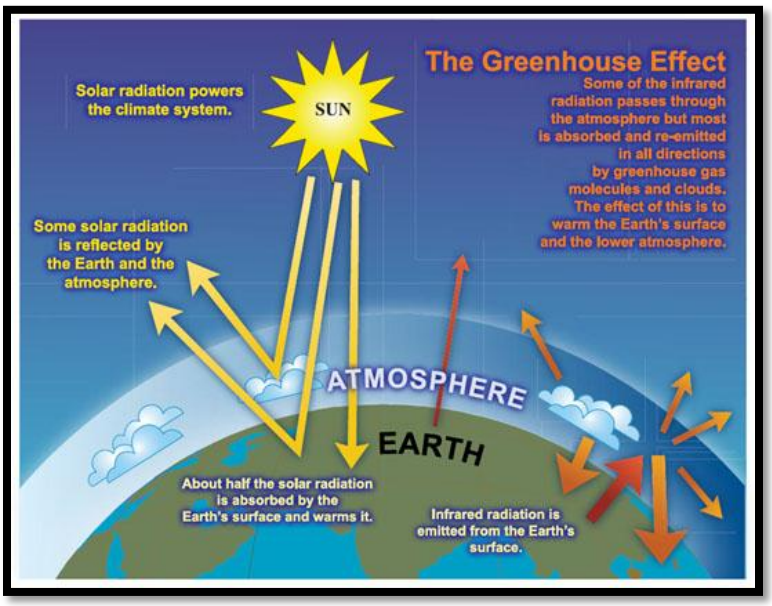
Students will be able to visualize the similarities between the earth and a greenhouse to help them better understand the greenhouse effect.

Materials:

- ☐ 5-8 clear aquariums or containers with a tight lid or plastic wrap to seal the top (one container for every 4 students)
- ☐ 8 large rubber bands (it needs to be able to fit around the aquarium or container
- ☐ Potting soil
- ☐ 10-16 small rooted plants
- ☐ Small rocks
- ☐ Several containers of aquarium charcoal (amount will depend on if you are using aquariums or containers to make your terrariums
- ☐ 16 small thermometers (about 4-5 inches long)
- ☐ Paper towels
- ☐ 8 cups of water
- ☐ Masking tape
- ☐ 8 sharpies
- ☐ 8 copies of directions
- ☐ 8 copies of the data sheet or a data sheet for each student

Background information:

We are able to live on Earth because our planet is similar to a greenhouse. The Earth's atmosphere absorbs and holds heat from the Sun through a process called the greenhouse effect. Unlike a greenhouse with solid walls, the Earth's atmosphere is not solid like the greenhouse's glass walls. The gases in the atmosphere absorb some of the heat radiated from Earth's surface, and then re-emit some into space and some back towards Earth's surface. Your students can observe this phenomenon by observing evaporation and condensation within the Terrarium from the plants.



http://www.global-greenhouse-warming.com/graphs-diagrams-of-global-warming-and-climate.html

Utah's HOGLE ZOO

Activity:

1. Divide your students into teams of four. Give each student piece of masking tape have one student write the letter A, B, C or D on a piece of tape and have each child stick them on their shirt.

- Make a copy of the following directions for each team (provided below)

1. Team member A will be in charge of reading the directions.
2. Have team member B make sure the inside of the aquarium or container is clean and dry.
3. Have team member C add the rocks or gravel to the aquarium. They should cover the entire bottom and be about one inch deep.
4. Have team member D cover the rocks with the aquarium charcoal. It should be about ¼ inch deep.
5. Have team member A Place about one inch of potting soil over the charcoal
6. Have team member B plant the plants in the aquarium. You may need to add some additional soil to ensure that the roots are covered. Once you plant the plants your aquarium has now become a terrarium.
7. Have team member C water the plants.
8. Have team member D place one of the thermometers in the terrarium so that it is easy to read.
9. Have team members A and B seal the top of the terrarium or container by placing a tight lid over the top or by placing plastic wrap over the top and using the rubber band, seal the terrarium.
10. Have team member C Write the teams name on masking tape and label your container
11. Have team members D and A place the terrarium in a window where it will receive direct sunlight.
12. Have team member B lay the second thermometer next to the terrarium.
13. As a team observe your aquarium over the next few days. We should see water droplets form on the sides of the terrarium. If we don't we need to water our plants. If we see mold start grow on the soil, we need to take the top off of the terrarium and let the soil dry out for a few days and then cover the terrarium again.
14. If water droplets do form on the sides of terrarium, we shouldn't need to water the plants. This is because the water from the leaves will form water vapor and then condense into water droplets and keep the soil moist for the plants.
15. Each day record the date and time we observed our plants on the Terrarium Data Sheet. Record the temperature from the thermometer inside our terrarium and the temperature outside our terrarium. Did our team see a difference?
16. As a group discuss your findings.

Conclusion:

1. Your students should find that the more sunlight a terrarium receives, the bigger the temperature difference inside and outside the terrarium.

Terrarium Team Directions

Team member A will be in charge of reading the directions.

1. Have team member B make sure the inside of the aquarium or container is clean and dry.
2. Have team member C add the rocks or gravel to the aquarium. They should cover the entire bottom and be about one inch deep.
3. Have team member D cover the rocks with the aquarium charcoal. It should be about ¼ inch deep.
4. Have team member A Place about one inch of potting soil over the charcoal
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