Nature Watch Activity Kit

Earth Day, EVERY Day Binoculars

(Nature Watch Kit #172)

Kit Contents

	Kit Size		
	1	**25**	**100**
Item:	Quantities:		
Kit Packs	1	25	100
Each pack includes:			
-Cardboard Sheet			
-Large Lens Set			
-Small Lens Set			
-Lanyard			
Instructor Manual	1	1	1

This page includes the Next Generation Science Standards (NGSS) mapping for this kit and Science, Technology, Engineering, and Math (STEM) extensions (on back) to use in adapting and extending this activity to other subject areas.

Next Generation Science Standards Alignment

K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.

5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

HS-ESS3-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

MS-ESS3-4. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

See Back for STEM Extensions

This Nature Watch Activity Kit contains an Instructor Manual and materials to implement the curriculum. The kit was designed to be used with adult supervision only. Unsupervised use is not recommended.

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STEM Extensions

Science

The average American uses 100 gallons of water per day. Many people around the world do not have access to enough fresh water. To survive, a person needs at least one gallon – four liters – of water per day. Challenge yourself to see how far you can make four liters go. Fill two two-liter bottles (or four one-liter bottles) with water and try to use it sparingly. Describe your experience. How long did your four liters last? What did you change about your daily habits? How did you feel?

Organize a toy exchange where everyone brings some toys from home that they no longer play with and trades toys with the rest of the class. At the end of the toy exchange, weigh all the toys to see how many pounds of trash you avoided sending to the landfill. You may even want to start a "toy library" so that someone can borrow some of the shared toys for a couple weeks, then bring them back for another child.

Make your own paper by recycling used newspapers, wrapping paper, or printer paper. Find instructions by searching online.

Bury an assortment of trash (leftovers from lunch, crumpled up homework, plastic containers, etc.) to see how the items decompose over time. Mark the plots where you bury the trash so you can remember what was buried in each one, and check back in two to three months to see what has become of the items.

Technology

Record a public service announcement video about one or more of the 3 R's and publish it online. Try to make the video go viral to spread your message as far as possible.

Search online for a carbon footprint calculator. Use it to determine your individual carbon footprint or the carbon footprint of your whole family. What are some things you will do to reduce your carbon footprint? What will you encourage your family to do?

Engineering

Go to a store and select an item that has excessive packaging. Design a new package that would use up fewer resources (and yield less trash) but still protect the item and attract consumers' attention.

Learn about composting as one way to reduce the amount of waste going to landfills. Once you understand how it works, design the ultimate compost bin that makes composting happen quicker and reduces the odor of the composted material.

Math

Either in your classroom or at home, weigh the trash that is produced over the course of one week. The average trash produced per person is 4.3 pounds per day; calculate your daily average and compare it to this one. Then, calculate how many pounds of trash you produce in one year. How many in five years?

Search online for a Garbage Timeline, which shows the decomposition rates of common trash items in a landfill. Which items take the longest to decompose? Which are the quickest? Calculate how old you would be when the following items decompose, if you throw them away today: banana peel, plastic bag, newspaper, tin can, and leather boots.