COMPLETE INTRODUCTION TO EARTH & SPACE (GRADES 3–5)

KT-EARTELM

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Science Foundations Series

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ACTIVITY #9 – OREO MOON PHASES

FROM THE KIT: Sandwich cookies

SAFETY NOTE: WARNING! DO NOT EAT OR DRINK anything in this kit.

1. Separate the halves of the six cookies to make 12 cookie halves.
2. Find one cookie half that has the full amount of cream filling. This is the "full Moon." If you do not have one, pick a cookie that has the most cream filling. Then, attempt to remove the matching filling and place it on the half to make a half with a full amount of cream filling.
3. The half that matches the full cream half will be your "new Moon."
4. Find two cookie halves, each with a half amount of cream filling. These are your "first quarter" and "third quarter/last quarter" Moons.
5. Find two cookie halves that are covered mostly with cream, but a little is removed from one side. These are your "waning gibbous" and "waxing gibbous" Moons.
6. Find two cookie halves that are mostly uncovered with cream. These are your "waning crescent" and "waxing crescent" Moons.
7. Arrange the cookies in a circle in the following order, with the first at the top and moving clockwise:
    - Full Moon (top)
    - Waxing Gibbous
    - First Quarter
    - Waxing Crescent
    - New Moon (bottom)
    - Waning Crescent
    - Third Quarter/Last Quarter
    - Waning Gibbous

Figure 11. Cookie Moon Phases.

ENVIRONMENTAL SCIENCE

Environmental science is the study of Earth's conditions, how the environment affects organisms, and how humans affect the environment. When you think of environmental science, you may think of climate change, pollution, invasive species, or fossil fuel usage.

Many professionals in the field include ecologists and conservationists. **Ecologists** are people who study the relationships between organisms and their environment. **Conservationists** are people who advocate for the protection and preservation of the environment.

Figure 16. Example of an Ecologist or Conservationist Observing a Water Sample.

Both ecologists and conservationists work to reduce **environmental implications**, or changes to the environment as an individual or organization's actions. Individuals in these two fields also work to better understand Earth's natural processes.

ACTIVITY #11 – WATER CYCLE

FROM THE KIT: Marker, zip-close bag, 1–2 *blue* color mixing tablets, stirring rod, and masking tape.
YOU PROVIDE: Water

NOTE: Save the stirring rod for future activities.

1. With the marker, draw a sun and at least one cloud at the top of the bag.
2. Add the one or two blue tablets to the bag and fill it one-quarter full with water.
3. Zip the bag shut and shake it bag gently to mix the color tablet(s) and water. Note: Use the stirring rod to help with mixing, if needed.

ACTIVITY #17 – HARDNESS TEST

FROM THE KIT: Talc, slate, granite, sandstone, copper piece, nail, and stirring rod.
YOU PROVIDE: Fingernail

1. Some material can scratch a rock or mineral, while other materials cannot scratch a rock or mineral. This is determined by the rock or minerals hardness. There is a hardness scale from 1–10, with a 1 being softest and a 10 being hardest. Predict the hardness for each specimen in the chart on the next page.
2. Scratch each rock and mineral with your fingernail. If it is scratched, record that in the chart on the next page. If it is not scratched, leave the box blank.
3. Scratch each rock and mineral that was not scratched with your fingernail with the copper piece. If it was scratched, record that in the chart on the next page. If it was not scratched, leave the box blank.
4. Scratch each rock and mineral that was not scratched with your fingernail or the copper piece with the nail. If it was scratched, record that in the chart on the next page. If it was not scratched, leave the box blank.
5. Scratch each rock and mineral that was not scratched with your fingernail, the copper piece, or the nail against the glass stirring rod. If it scratched the stirring rod, record that in the chart on the next page.
6. Using the Mohs Scale of Hardness below, determine the hardness of each rock and mineral based on what did or did not scratch it. Record the hardness in the chart on the next page.

Hardness	
1	Scratched by fingernail easily
2	Scratched by fingernail
3	Scratched by copper piece
4	Scratched by nail easily
5	Scratched by nail
6	Scratches glass
7	Scratches glass easily; scratches steel
8	Scratches quartz, and other rocks and minerals with a hardness of 7
9	Scratches topaz, and other rocks and minerals with a hardness of 8
10	Hardest of all materials; scratches other rocks and minerals with a hardness of 9