

# Target Strategies

## 5th Grade - Earth and Sun



### Investigation 1

I can trace my shadows in the morning and afternoon, and compare the tracings.

I can use the information from recording my shadow to determine the position of the Sun as it appears to move throughout the day.

I can create a sun tracker and use a compass or orient it to north-south, and make hourly recordings of the position of the shadow cast by the tee.

I can discover that rotation of Earth results in day and night, and in the process, figure out which direction Earth rotates on its axis.

### Investigation 2

I can create a Moon calendar, in which I can record the Moon's appearance every day for a month.

I can build a model of the Earth/Moon/Sun system.

I can analyze the Moon observations to discover the sequence of changes.

I can remember the four specific phases and the intermediate phases of the moon.

I can use a light source and sphere to simulate an Earth-Moon-Sun system and explore the cause of Moon phases.

I can observe a ball swinging in a circle on the end of a string as a model of gravity's effect.

I can observe that gravity is a force that changes planets' direction of travel and produces circular orbits.

I can identify images in patterns of stars as constellations.

I can simulate Earth's rotation and observe the appearance of stars rising in the east, traveling across the sky, and setting in the west.

I can observe the relationships and orientations of Earth, the Sun, and the Milky Way to explain why different stars are visible in different seasons.



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### Investigation 3

I can explore properties of air by working with syringes and tubes to discover that air takes up space and is compressible.

I can discuss evidence that air is matter and has mass.

I can study Earth's atmosphere, using diagrams, photos from space, and a reading.

I can think about the atmosphere as a mixture of gases with properties that change with distance about Earth's surface.

I can review local weather reports and determine the variables that combine to produce the weather.

I can experiment with weather instruments - a thermometer, barometer, hygrometer, compass, and wind vane.

I can use a digital weather station with a receiver outdoors to gather weather data, and develop a plan for acquiring daily data and sharing them with the class.

### Investigation 4

I can observe two examples of heat transfer by conduction; from hot water to a container of cold water, and from one end of a metal strip to the other.

I can discuss the mechanisms by which energy transfers to and from the air, radiation and reradiating from Earth's surface, and conduction between Earth's surface and air particles.

I can use water, at different temperatures to discover the relationship between temperatures and density.

I can use coloring in water to observe a convection current, the same process resulting in wind on Earth.

### Investigation 5

I can set up cups of ice water and room-temperature water and observe condensation on the ice-water cups.



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### Investigation 5 -

I can learn that water vapor in the air condenses into liquid dew (or frost) on cold surfaces.

I can observe that water evaporates from cups that are exposed to heat.

I can observe the relative amount of fresh water and salt water, and their distribution on Earth.

I can simulate the travel of a water drop through the water cycle.

I am introduced to climate and can suggest schemes for describing world climate regions, based on my understanding of weather variables.

I can develop an awareness about global climate change.