Third grade

3–LS4–1: Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.

3–LS4–2: Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

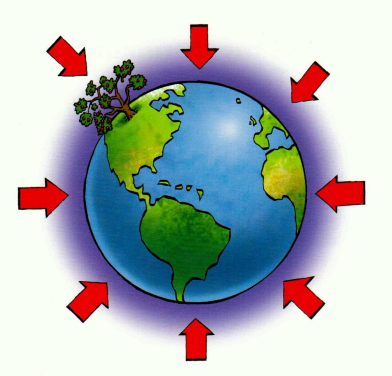
3–LS4–3: Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

Big Idea: Animals adapt to their environment and surroundings.

Storyline: Animals adapt to their environment and surroundings. These structures are called adaptations. Adaptations are developed over a period of time to help with survival. Adaptations are best suited for one environment. Plants and animals can have adaptations.

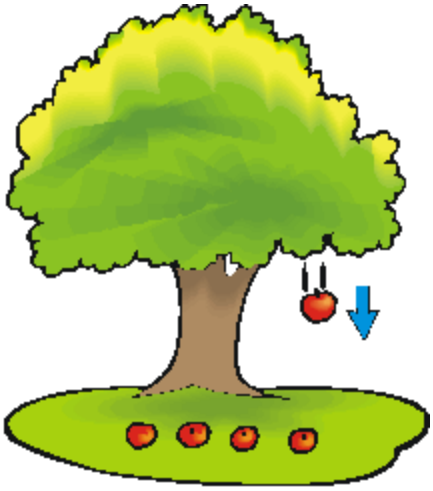
5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down. [Clarification Statement: “Down” is a local description of the direction that points toward the center of the spherical Earth.]

Everything that has mass has gravity, the greater the mass the greater the gravity. Objects are pulled towards each other because of gravitational force. Objects with higher amounts of gravity have a stronger attraction, bringing them closer to each other.



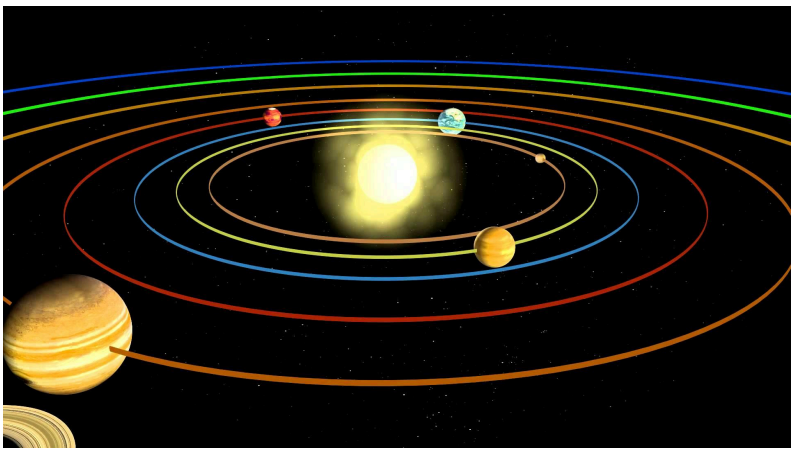
Earth is a large mass, high gravity, and all objects on earth are attracted to the earth causing the gravitational force to pull objects towards the earth. Everything on earth, including you, exerts a gravitational force on earth but because of the earth's size these forces don’t have an effect which is why objects fall down and not up.

The story goes that Sir Isaac Newton was sitting under an apple tree when an apple fell and hit him. This caused him to ask, “Why do things fall down and not up, left or right?” When talking about gravitational pull on an object, we typically say an object falls down because of gravity. When an object is falling down it is falling towards earth. This is because earth’s gravitational field is focused inward, pulling objects back in towards earth. When we say an object is going up, it is going away from the



earth but it is pulled back towards earth because the gravitational force from the earth onto the object is greater than the force being exerted onto the object when it is thrown.

Moons, the sun and other planets have gravity as well and the strength of their gravitational force affects each planet. The sun's gravitational force is greater than earth's, it is so big that it is what holds all planets in orbit around it. This keeps the earth a comfortable distance away from the sun which warms the earth and keeps earth's atmosphere in place so we have sunlight and air to breath. On earth we have ocean tides because of the gravitational force from the moon pulls seas towards it.



Student Vocabulary:

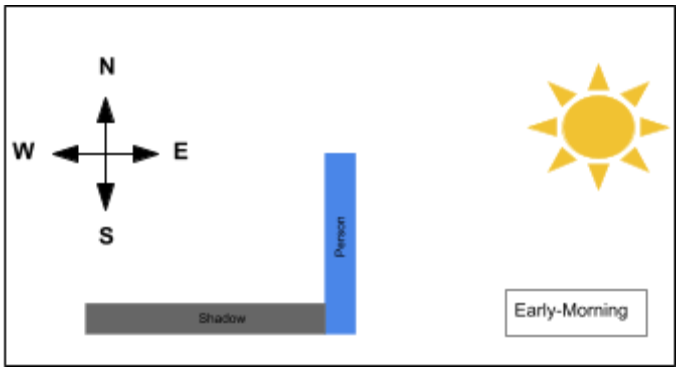
- Gravity or Gravitational Force- An invisible force pulling objects to the center. (Earth).
- Force- The push or pull on an object.
- Mass- A large amount of material causing something to weigh more.

5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

Shadows appear when something blocks the light. In this case, when you see your shadow, you are the thing blocking the light. Where we see our shadow changes throughout the day. Since everything in our solar system is rotating, the shadows we see on Earth change. Depending on where we are in our rotation and how close we are to the sun, our shadows change throughout the day. In the morning, when we are just turning towards the sun again, our shadows are long and will be seen when looking west since the sun rises in the east. As the sun gets more direct on our position on Earth, our shadow will become shorter and move closer to where we actually are. Around noon, when the sun is directly above us, our shadow will be directly below us. When the sun continues to move west as it is setting, our shadow will begin to elongate and will be seen when looking east. The angles of our shadows all depend on where we are standing and where Earth is in its rotation for that day. Shadows will also change based on the time of year. Our shadows will show where we are in regards to the sun and how close or far away we are. The closer we are to the sun, the larger our shadows will be.

Student Vocabulary:

- Cardinal directions
    - North
    - East
    - South
    - West
- Shadow
- Rotation
- Daylight
- Angles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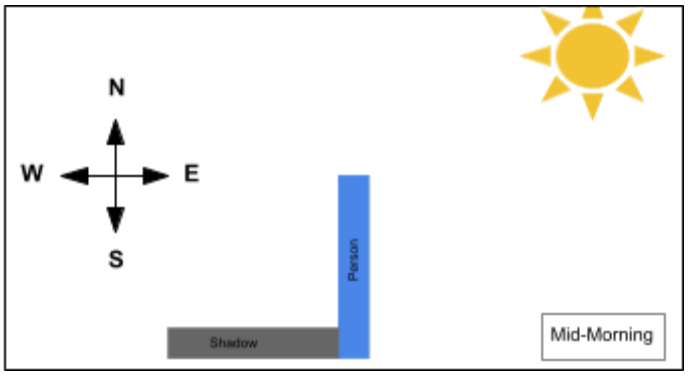
S
Person
Shadow
Early-Morning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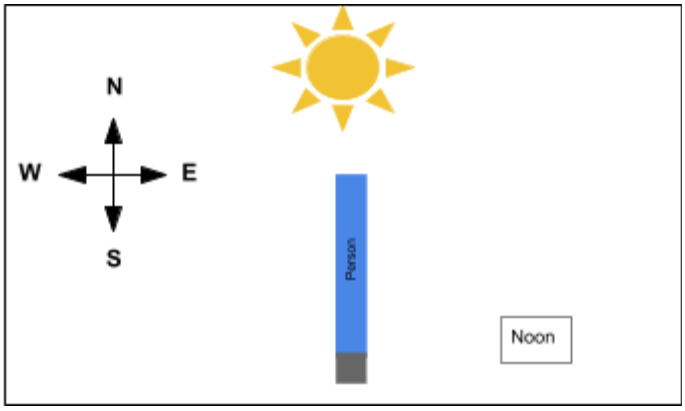
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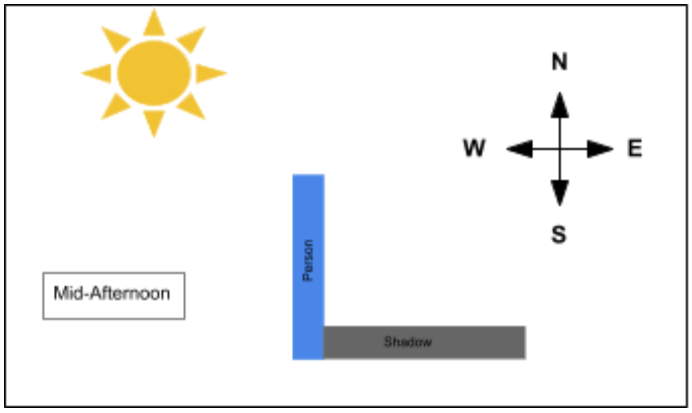
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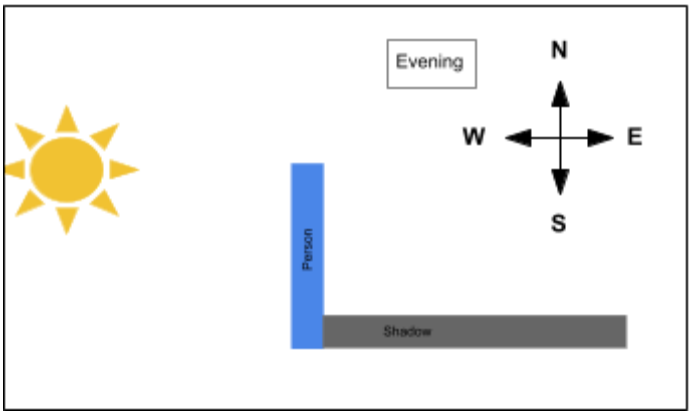
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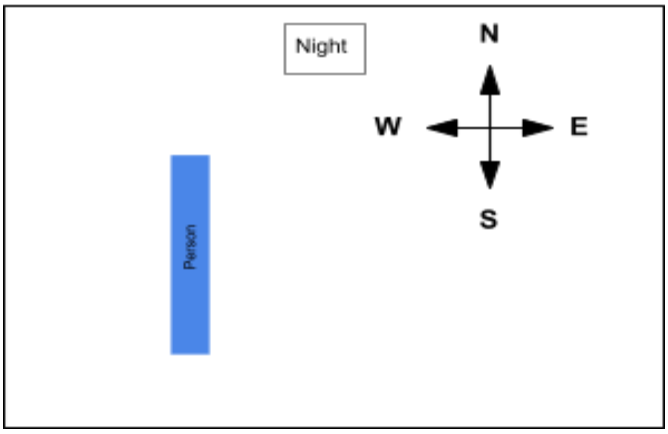
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