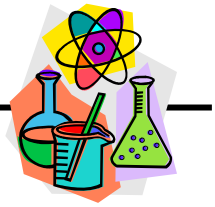
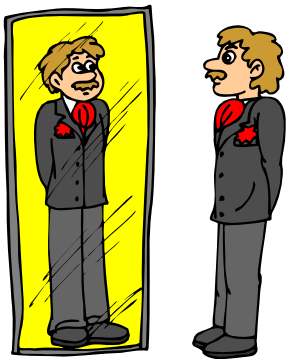


Reflection, Absorption and Refraction

Reflection



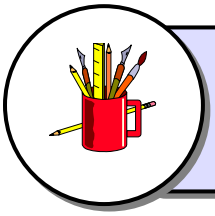
Reflection: Light hits a surface and bounces back off that surface, e.g., mirrors.

Plane mirror: A flat, smooth reflective surface.

Concave mirror: A smooth reflective surface that curves inward in the centre.

Convex mirror: A smooth reflective surface that curves outward in the centre.

1. With your class, discuss how the reflection of light changes depending on the roughness or smoothness of the reflecting surface.



Use Tool Discussion Notes.

2. Investigate how concave and convex mirrors are used in your community. Consider:

   - security
   - vehicle safety
   - observatories.

   Share your findings with the class.

Absorption

Absorption: Light is trapped by or held inside something (not reflected, refracted or transmitted), e.g., bricks.

3. Absorbed (trapped) light can be used to heat objects, just like reflected light can keep objects cool. Discuss the following questions with classmates.
    - Why are many winter clothes dark in colour while summer clothes are lighter in colour?
    - Which would keep a horse warmer: a dark brown blanket or a light yellow one?
    - Why are tents often light in colour?

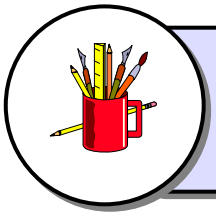
    Investigate situations where absorbed light energy is used to heat objects.

Refraction

Refraction: When light passes through something transparent, such as air, water or glass, its speed is reduced and it bends. Refraction of light by lenses is used to focus light in magnifying glasses, eyeglasses and contact lenses, microscopes and telescopes.

4. Review Scientific Inquiry before creating the following experiment. Using a penlight or flashlight, predict and investigate how a variety of objects and materials affect the transmission of light. Complete a chart similar to the one below.

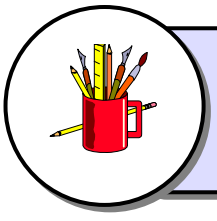
Object	Prediction	Results (absorbed, reflected, refracted)



Use Tools Planning an Experiment and Experiment/Investigation Template I.

5. Work with your class to complete the following chart.

	What happens to the light?	Describe the surface of objects that cause this.	What else happens?
Absorption			
Reflection			
Refraction			



Use Tool Analyzing and Interpreting Experiment Results.