



LIGHT

PowerPoint & Notes Set

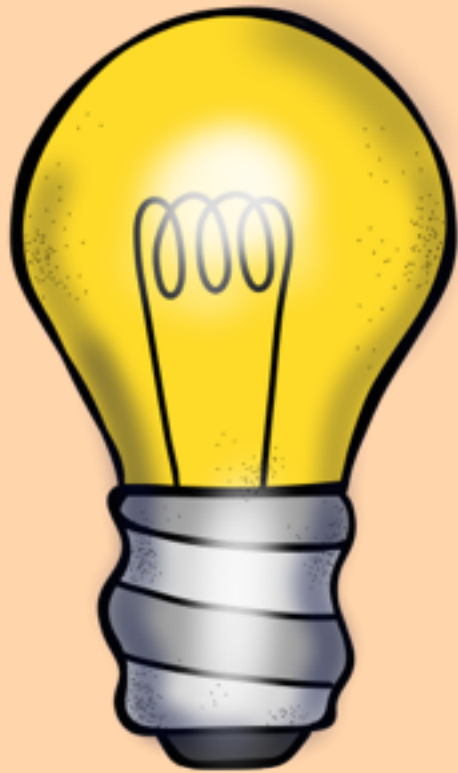


What is light?

- **Light** is a kind of energy that you can see.
- Light moves in waves.
- Most objects do not give off their own light.
- We see objects because light waves hit the object and bounce off of it.



What is light?



- Light waves travel in a straight path called a **ray**.
- When passing through different materials, light waves can bend or turn.



Natural vs Manmade

NATURAL

- sun
- stars
- match
- fire
- lightning
- lava

MANMADE

- lightbulb
- headlights
- flashlight
- streetlight
- computer screen



Light and Matter

- Depending on the type of matter light passes through, light waves will do different things.
- Objects are classified as being **transparent**, **translucent**, or **opaque**.



Transparent



- You can see through objects that are transparent.
- A **transparent object** lets all light pass through it.
- For example, windows and water are transparent.

Translucent

- You can partly see through objects that are translucent.
- A **translucent object** lets some light pass through it.
- For example, frosted glass and wax paper are translucent.



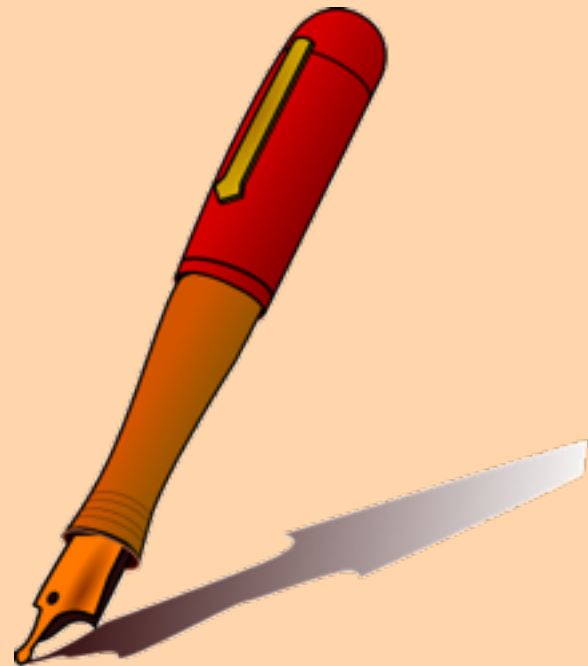
Opaque



- You cannot see through objects that are opaque.
- An **opaque object** lets no light pass through it.
- For example, walls and people are opaque.

Shadows

- Shadows are created when light hits an opaque object.
- Some light waves hit the object and some are blocked by the object.
- A **shadow** is a place where light does not strike.



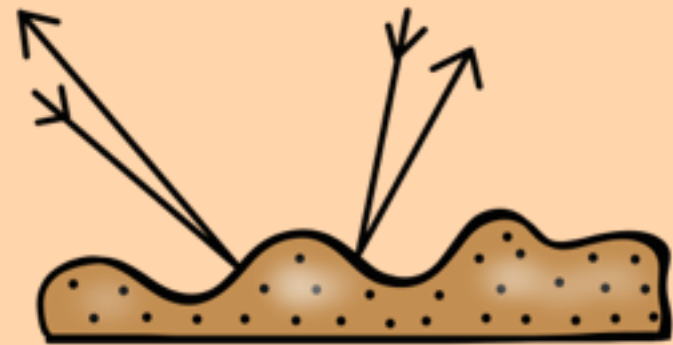
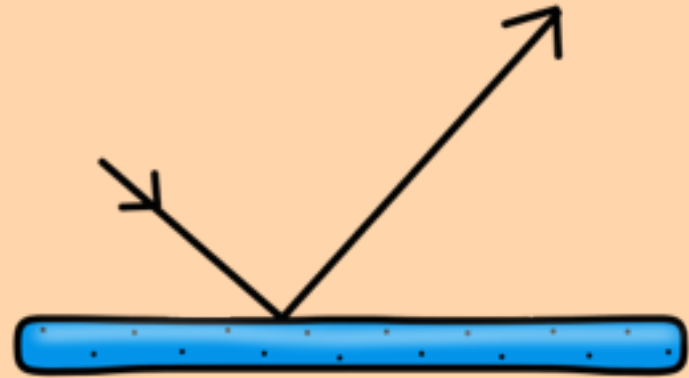
Reflected Light

- Light waves move in straight lines (rays), but they change direction when they hit something.
- Light waves bounce, or **reflect**, off most objects.



Reflection

- If an object is smooth and shiny, the light waves bounce off in one direction.
- If an object is not smooth, light waves bounce back in many directions.



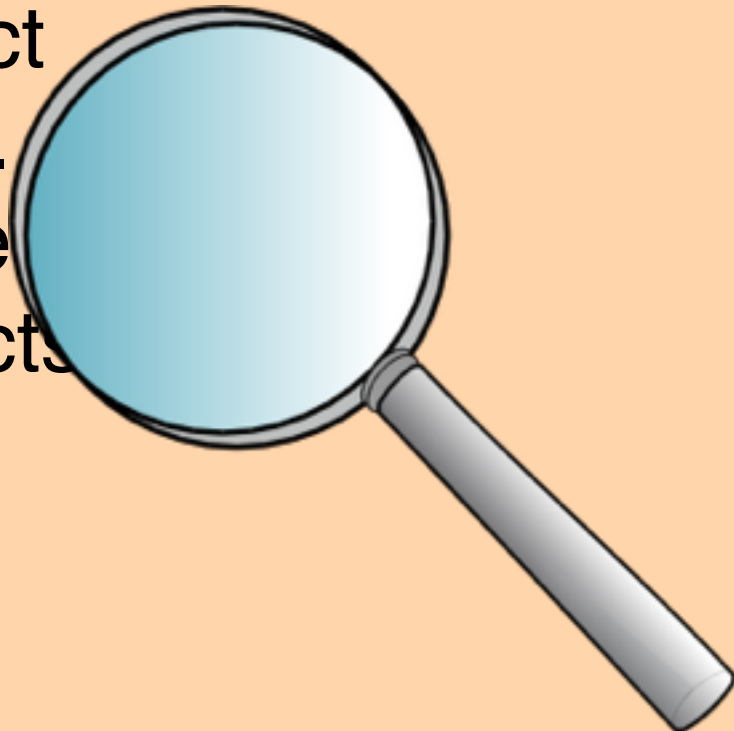
Refraction



- Light waves **refract**, or bend, when they move from air to water.
- Refracted light makes things look bent or broken.

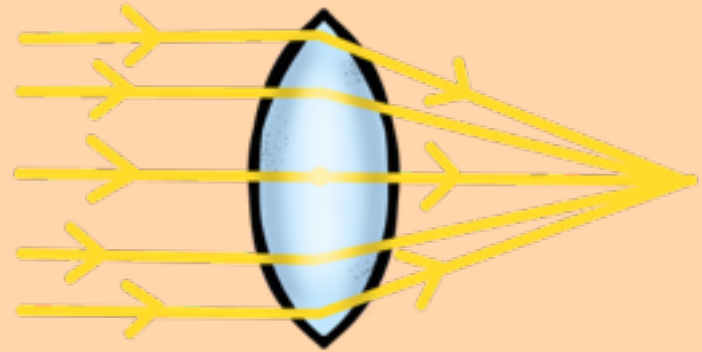
Lenses

- A **lens** is an object that refracts light.
- Lenses are curved transparent objects that bend light waves.



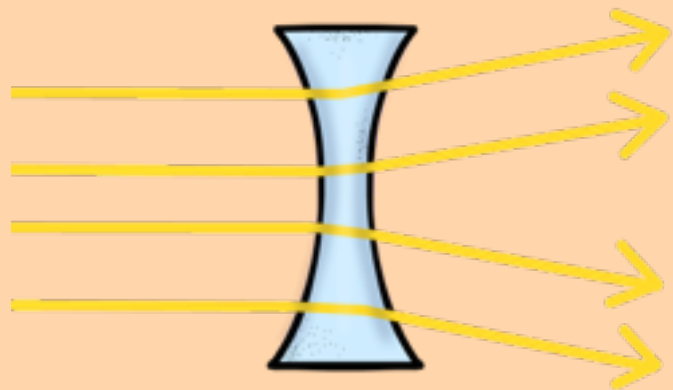
Convex Lens

- A **convex lens** is a curved lens that makes objects appear bigger.
- Convex lenses are used in telescopes and magnifying glasses.



Concave Lens

- A **concave lens** is a curved lens that makes objects appear smaller and farther away.
- Concave lenses are used in car side mirrors.



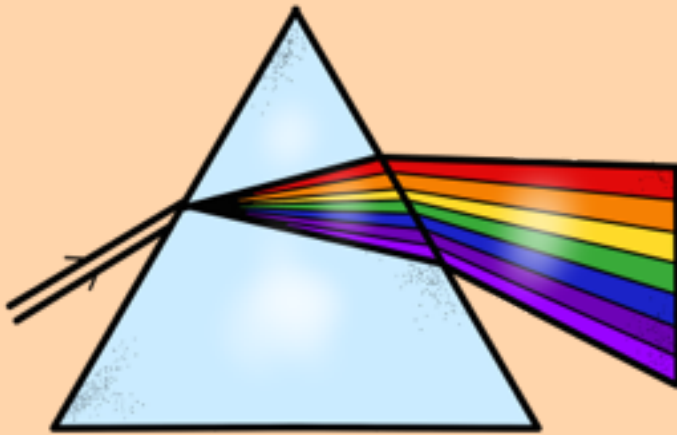


What is Color?

- When light hits an object, the color of the light affects the way you see the object.
- White light – all the colors of the rainbow



Prisms



- A prism is a piece of glass or other transparent material that is shaped like a triangle.
- Prisms break white light into all the colors of the rainbow.

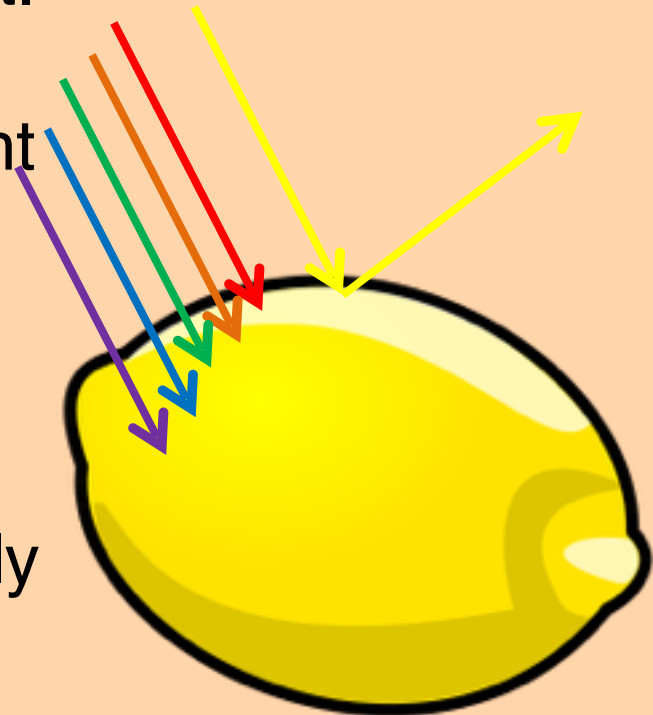
Rainbows

- When it is raining, you can sometimes see a rainbow.
- Rainbows occur because raindrops act like prisms.
- They break white light into the colors, which forms a rainbow.



How Do We See Colors?

- Light shines on an object.
- The object absorbs, or takes in, some of the light waves.
- The object absorbs and reflects colors.
- You do not see the absorbed colors, you only see the reflected colors.



All colors, but yellow, are absorbed.

Yellow is reflected.