

# S U M M A R I E S

## **INVESTIGATION 1: How Light Interacts With Objects**

In Investigation One, you explored how light is able to interact with different objects through reflection, absorption and transmission. During this Investigation, you:

1. observed the amount of light that is transmitted or absorbed by a transparent object.
2. investigated how transparent objects reflect, transmit and absorb light
3. investigated how opaque objects absorb or reflect light but cannot transmit light.

Through these experiments, you found that:

1. the amount of light that is transmitted or absorbed by a transparent object depends upon the shade of the object.
2. darker shades absorb more light than lighter shades.
3. lighter shades transmit more light than darker shades.
4. lighter shades reflect more light than darker shades.

## **INVESTIGATION 2: Reflection**

In Investigation Two, you explored how light is reflected. During this Investigation, you:

1. investigated the Law of Refraction
2. calculated the angles of incidence and reflection.
3. investigated how the angles of incidence and reflection are related.

Through these experiments, you found that:

1. a protractor is the tool that is used to calculate angles.
2. the angle of incidence always equals the angle of reflection.
3. other surfaces, not just mirrors, reflect light.

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## **INVESTIGATION 3: Observing Reflection**

In Investigation Three, you used several mirrors to view an object that is hidden from direct view. During this Investigation, you:

1. positioned several mirrors based on the Law of Reflection.
2. positioned the mirrors so that each angle of incidence equaled each angle of reflection.

Through these experiments, you found that:

1. light can be reflected more than once.
2. the image of an object can be used to view the object if the object is hidden from view.
3. if you view an object from an angle that is different from the angle of incidence, the object may not be seen

## **INVESTIGATION 4: The Visible Spectrum**

In Investigation Four, you investigated the Visible Spectrum. During this Investigation, you:

1. used a prism to separate white light into the colors of the Visible Spectrum.
2. used colored filters to investigate absorption and transmission of the different colors of the Visible Spectrum.

Through these experiments, you found that:

1. each color of the Visible Spectrum has a specific wavelength.
2. the wavelength of each color is different from the wavelengths of the other colors.
3. the wavelengths of the Visible Spectrum are absorbed and transmitted differently by transparent, colored filters.
4. wavelengths that are transmitted by each filter correspond to the color of the filter.
5. wavelengths that are absorbed by each filter correspond to all the colors except those that are transmitted.

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## **INVESTIGATION 5: Perception of Visible Light**

In Investigation Five, you explored how the color of an opaque object is perceived. During this Investigation, you:

1. illuminated differently colored objects with white light.
2. used colored filters to view differently colored objects.
3. observed changes in the perceived colors of the objects.

Through these experiments, you found that:

1. opaque objects do not transmit light.
2. opaque objects reflect wavelengths of light that correspond to their color.
3. opaque objects absorb all wavelengths of light except those that are reflected.
4. the wavelengths of light reflected off of an opaque object correspond to the color that we perceive.
5. light absorbed by an opaque object corresponds to all other colors of the Visible Spectrum except for the color that is seen.