

GRADE 5 LEARNING PACK

Light, Optics & Sound Investigation

Investigate reflection, refraction at an introductory level, shadows and sound vibration/pitch using safe observations and models.

LEARN • PRACTISE • CREATE • REFLECT

Original BrightPencil Kids resource - adult-led where appropriate

A4 edition • 12 purposeful pages • review copy

Print. Learn. Grow.

Grown-up guide

Learning objective

Investigate reflection, refraction at an introductory level, shadows and sound vibration/pitch using safe observations and models.

Use this pack well

- Model the first example aloud, then let the learner try.
- Ask “How do you know?” more often than “Are you finished?”.
- Use real objects, talk, movement or observation when the activity suggests it.
- Stop or shorten the session if attention or enjoyment drops.
- Open-ended pages can have many successful answers.

Quality note

This resource was written originally for BrightPencil Kids. Curriculum sources informed scope and progression only; no third-party worksheet or story text is reproduced.

Learn the idea

1 Light can be reflected and can change direction when passing between materials.

2 Shadows depend on the geometry of source, object and screen.

3 Sound is associated with vibration; frequency-like changes can be experienced as pitch without unsafe volumes.

Talk about it

Explain one idea in your own words. Give an example from real life, a drawing or an object if that helps.

Trace a simple reflection path using equal-angle intuition without formal trigonometry.

Observe a straw/pencil appearing shifted in water and describe rather than overclaim the cause.

Predict shadow changes as source/object distances change.

Relate vibrating length or tension to pitch observations in a safe model.

Design a test where only one sound-making variable changes.

Try it beyond the page

Real-world / hands-on connection

Use a torch, mirror, transparent cup and quiet vibrating objects with adult supervision; never look at the Sun or use harmful sound levels.

Before you finish

What did you notice?

What evidence, object or example helped you?

What would you change if you tried again?

Create something

Your project

Create a light-and-sound investigation journal with diagrams, predictions, data and safety notes.

Use this space for planning, drawing, mapping, designing or notes.

CHALLENGE

Think deeper

1. What causes sound in a vibrating object?

2. Should learners look directly at the Sun to study light?

3. What happens to light in reflection?

Quick review

1. In one sentence, explain the big idea of “Light, Optics & Sound Investigation”.

2. Draw or write one example that shows you understand.

3. Choose one activity from this pack and explain the strategy you used.

4. Write one question you still have.

Answer & discussion notes

Use these as guidance, not scripts. Open questions can have different successful responses when the reasoning is sensible and evidence-based.

1. Suggested response

Vibration.

2. Suggested response

No.

3. Suggested response

It changes direction at a reflecting surface.

Review before publication

Check age fit, factual accuracy, clarity, accessibility, rights provenance and whether the activity works in practice. This file remains a review copy until those checks are signed off.

FINISH

My learning reflection

I finished this BrightPencil learning pack.

One thing I understand better now:

A strategy that helped me:

Something I created or noticed:

My next small question or goal:

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