A FREE AI TEACHING KIT FOR TEACHERS

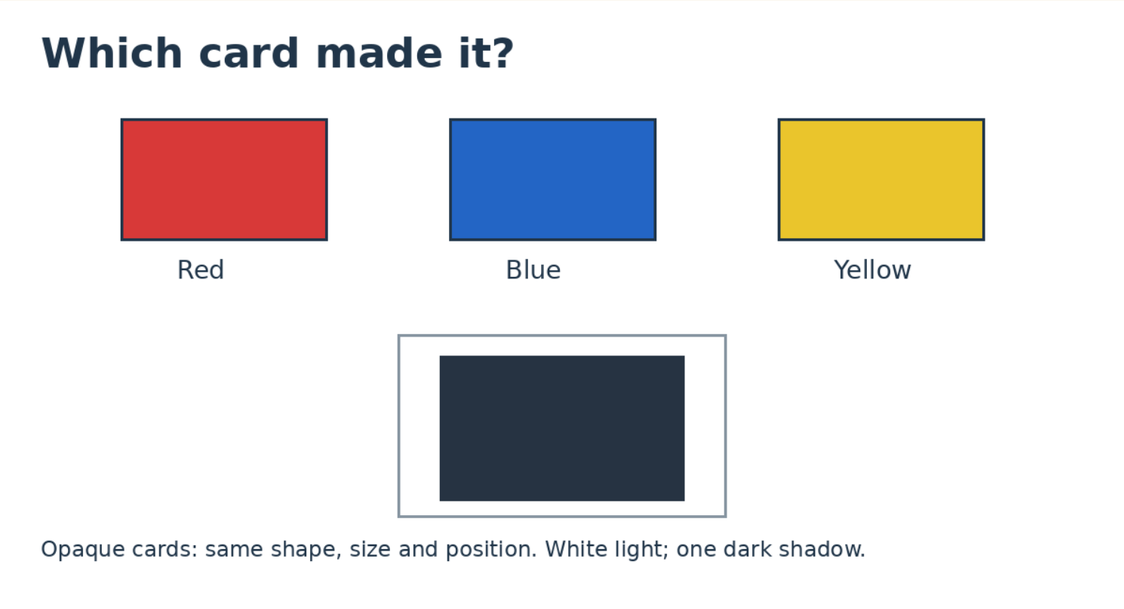
Trust, but Verify

Teaching one NCERT chapter with free AI — and checking its work.

BEFORE WE OPEN A SINGLE APP

Which card made this shadow?

Begin before any app is open. Show the dark shadow, ask which card made it, and let the room disagree. That small argument is the habit we use all day: test it, do not guess it.



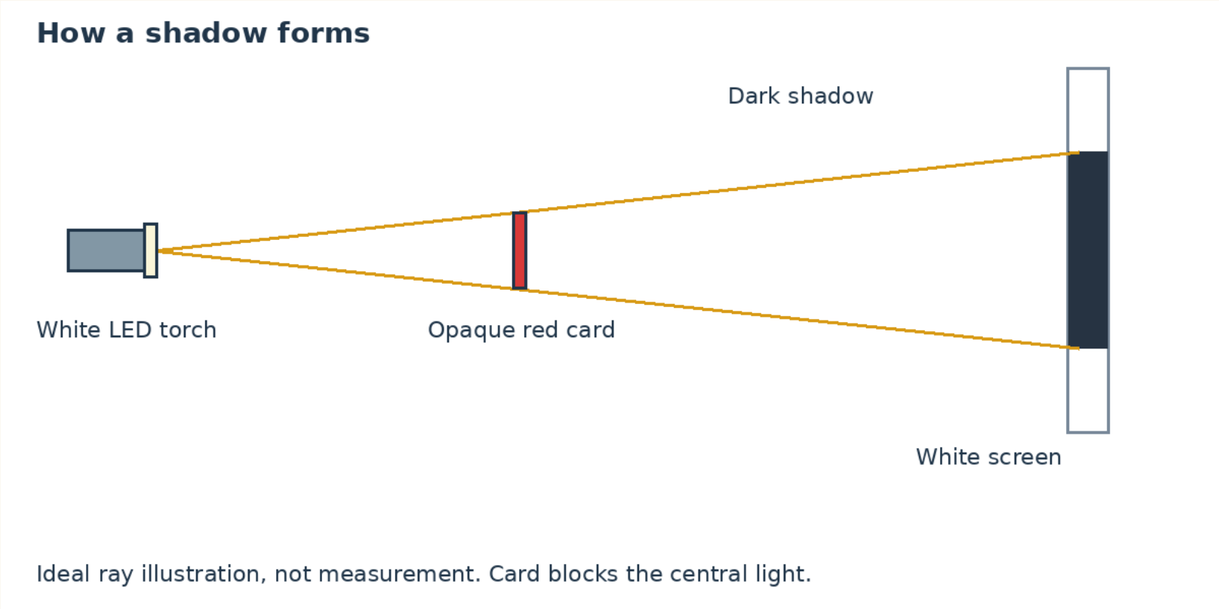
Red, blue or yellow?
Same shape.
Same position.
White light.

Under white light, with the setup fixed, the shadow cannot reveal the card's colour. You have to test it.

NCERT • CURIOSITY • GRADE 7

One real chapter, and everything you need to teach it

Everything today is built around one chapter you already teach. We make the plan, the images, the questions and the slides for it, and keep a recipe so the next chapter is faster.



Chapter 11:
Light: Shadows and Reflections.
Focus: shadow formation.

Today: plan, images, questions, slides and a saved recipe.

GOOGLE DRIVE • KEEP YOUR WORK TOGETHER

First, make one folder for this chapter

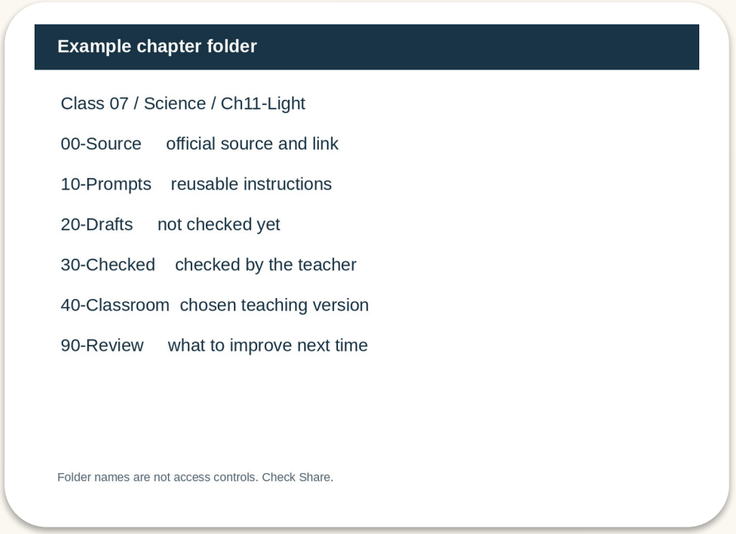
Good work starts with somewhere to keep it. Before we touch AI, we make one clear home for this chapter so nothing gets lost between drafts.

CLICK

Drive → New → New folder.
Make Class 07 / Science / Ch11-Light.

SAVE THIS PATTERN

Keep Source, Prompts, Drafts, Checked and Classroom apart. Keep the teacher key separate.



Use the folder template in the kit.

A clear name beats “final-final-new”.

THE RECIPE YOU CAN KEEP

The recipe is a .md file, and a .md file is just text

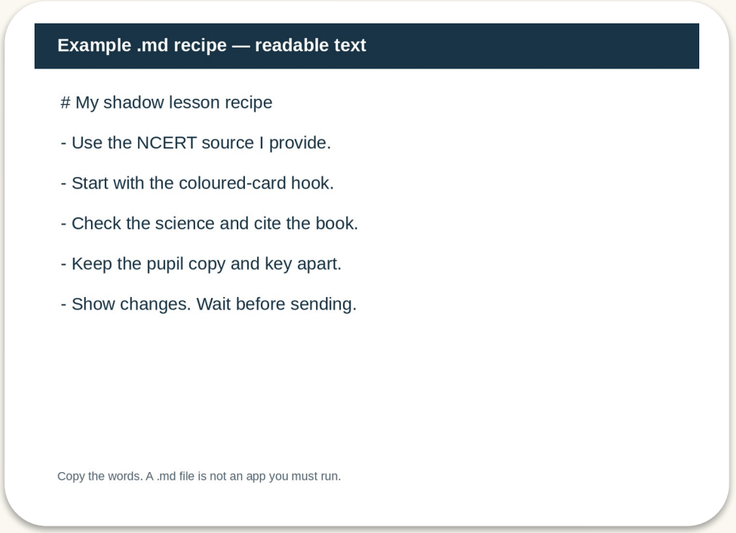
The recipe we keep reusing is a plain text file. The name looks technical, but there is nothing to install and nothing to run; it is just words you can copy.

CLICK

Open the saved recipe in a text editor.
Copy its words into your project or chat.

READ THESE MARKS

starts a heading.
- starts a list item.
You do not need to run this file.



Keep a PDF copy if your phone cannot open .md.

A .md file does not grant access or make AI remember forever.

THREE WORDS AT THE POINT OF USE

Three words to know before you open any app

Three small words clear up most of the confusion. If these make sense, everything else today is easier to follow.

App

The tool you open: ChatGPT, Claude or Gemini.

Model

The AI system doing the work inside the app.

Context

The source, rules and chat it can use for this task.

Ask: “Which file are you using? What can you read?”

GEMINI NOTEBOOK / NOTEBOOKLM • STANDARD FREE

Build a notebook that reads only your chapter

The first tool's whole job is to stay loyal to your chapter. We give it the PDF, switch off everything else, and make it answer only from those pages.

CLICK

New notebook → Add sources → upload the PDF.
Leave only the NCERT chapter selected.

PASTE

Use only this chapter. Focus on printed pages 158–159 and 166. Cite each science fact. Do not search or add sources.



Six facts for shadow detectives

Focus: Shadow formation, section 11.4; Activity 11.4 and Table 11.2, printed pp. 158-159. This is one focused lesson, not coverage of the entire chapter.

1 | Straight paths

In this classroom model, light follows straight paths. An opaque card blocks paths to part of the screen. Source: pp. 155, 157.

2 | A visible shadow

Use a light source, a blocking object and a surface on which to see the dark region. A wall can be that surface. Source: pp. 158-159.

3 | Materials matter

Opaque objects usually give dark shadows; translucent objects give lighter ones. Some transparent objects can also give faint shadows. Source: p. 158.

4 | Colour is not revealed

For identical opaque cards under white light, changing the card colour does not make a matching coloured shadow. Source: p. 159.

5 | Position matters

Object position can change shadow size, shape and sharpness. With a small light source and fixed screen, a card nearer the source makes a larger shadow. Source: pp. 158-159; application supported by p. 166, Q5-6.

6 | A fair comparison

Keep the torch, screen, card size and card angle fixed when testing card colour. Change only the feature being investigated. Source: Activity 11.4 / Table 11.2, p. 158; teacher-designed control rule.

Official chapter: https://ncert.nic.in/textbook/pdf/gecu111.pdf

Original paraphrase and diagrams prepared by an AI assistant as workshop examples. No NCERT endorsement. Consult the official source for full context.

Original teaching material | NCERT | Curiosity, Grade 7 | Ch. 11 | Reprint 2026-27 | pp. 158-159 | 1/1

A source-based chapter notebook.

Use desktop for the full setup. Phone controls differ.

NOTEBOOK • CHECK THE CONTEXT

Always open the citation, not just the answer

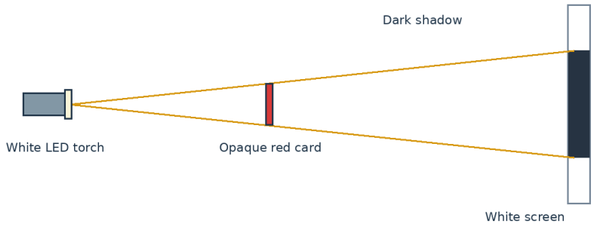
An answer with a citation looks trustworthy. Do not stop there: open the citation and read the actual line in the chapter. That click is the check.

CLICK

Ask the question. Click its source citation.
Read the highlighted passage in the chapter.

PASTE

What is needed to observe a shadow? Use only the selected chapter.
Give the supporting citation.



Check against printed pages 158–159.

Uncheck AI notes as sources, so it does not cite itself.

A QUICK CONTEXT TEST

Test the tool with a question the book cannot answer

Before you trust a tool to stay inside the chapter, prove it. Ask something the book cannot possibly answer, and watch whether it admits that it does not know.

Ask this

“What is the price of my torch?”

A safe answer

“Not found in the selected chapter.”
It must not invent a price.

If it searches or guesses, stop calling it chapter-only.

CHATGPT FREE • REUSE THE RULES

Keep this chapter in a Project so you can reuse it

Typing the same rules into every new chat wastes your time. A Project holds the source and the rules once, so each new task starts ready.

CLICK

New project → name it “Class 7 Light” → add the source. … → Project settings → add the saved rules.

PASTE

Use the chapter I provide. Name the source first. Cite science claims. Flag missing information. Ask before adding outside facts.

Example chapter folder

Class 07 / Science / Ch11-Light

00-Source	official source and link
10-Prompts	reusable instructions
20-Drafts	not checked yet
30-Checked	checked by the teacher
40-Classroom	chosen teaching version
90-Review	what to improve next time

Folder names are not access controls. Check Share.

New task chats can stay with this chapter.

A Project is a workspace, not the same as a Drive folder.

FREE DRAFTING • SAME NCERT SOURCE

Ask ChatGPT for the lesson plan

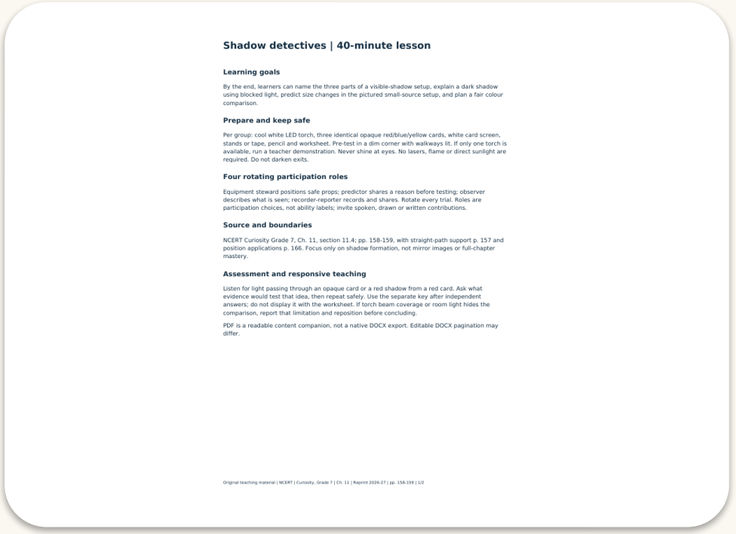
Now we ask for the lesson itself. Give the tool the source and a clear request, and tell it to name that source before it writes a single line.

CLICK

Open the project, or use + → Add photos & files.
Attach the chapter or the source brief.

PASTE

Make a 40-minute Class 7 shadow lesson. Start with the coloured-card hook. Give a safe test, teacher questions, practice and source pages.



Shadow detectives | 40-minute lesson

Learning goals

By the end, learners can name the three parts of a visible-shadow setup, explain a dark shadow using blocked light, predict size changes in the pictured small-source setup, and plan a fair colour comparison.

Prepare and keep safe

Per group: cool white LED torch, three identical opaque red/blue/yellow cards, white card screen, stands or tape, pencil and worksheet. Pre-test in a dim corner with walkways lit. If only one torch is available, run a teacher demonstration. Never shine at eyes. No lasers, flame or direct sunlight are required. Do not darken exits.

Four rotating participation roles

Equipment steward positions safe props; predictor shares a reason before testing; observer describes what is seen; recorder-reporter records and shares. Rotate every trial. Roles are participation choices, not ability labels; invite spoken, drawn or written contributions.

Source and boundaries

NCERT Curiosity Grade 7, Ch. 11, section 11.4; pp. 158-159, with straight-path support p. 157 and position applications p. 166. Focus only on shadow formation, not mirror images or full-chapter mastery.

Assessment and responsive teaching

Listen for light passing through an opaque card or a red shadow from a red card. Ask what evidence would test that idea, then repeat safely. Use the separate key after independent answers; do not display it with the worksheet. If torch beam coverage or room light hides the comparison, report that limitation and reposition before concluding.

PDF is a readable content companion, not a native DOCX export. Editable DOCX pagination may differ.

Original teaching material | NCERT | Curiosity, Grade 7 | Ch. 11 | Reprint 2026-27 | pp. 158-159 | LO

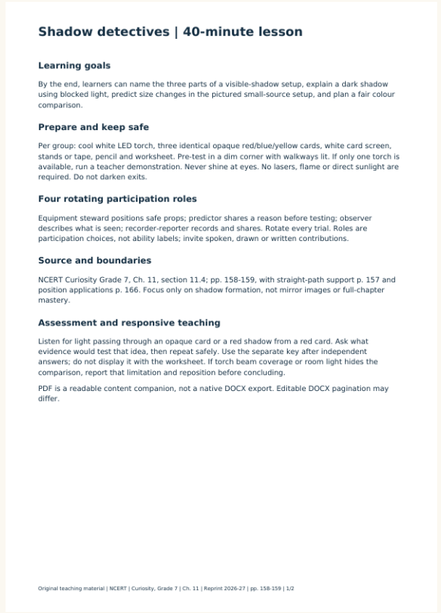
Compare with lesson-plan.docx in the kit.

Keep predictions separate from observations you actually made.

THE PLAN IT PRODUCED

Read the finished plan and check its work

Here is the plan the prompt produced. Do not take it on trust: read it, check the science against the chapter, and rehearse it before it meets a class.



Shadow detectives | 40-minute lesson

Learning goals

By the end, learners can name the three parts of a visible-shadow setup, explain a dark shadow using blocked light, predict size changes in the pictured small-source setup, and plan a fair colour comparison.

Prepare and keep safe

Per group: cool white LED torch, three identical opaque red/blue/yellow cards, white card screen, stands or tape, pencil and worksheet. Pre-test in a dim corner with walkways lit. If only one torch is available, run a teacher demonstration. Never shine at eyes. No lasers, flame or direct sunlight are required. Do not darken exits.

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PDF is a readable content companion, not a native DOCX export. Editable DOCX pagination may differ.

Original teaching material | NCERT | Curiosity, Grade 7 | Ch. 11 | Reprint 2026-27 | pp. 158-159 | 1/2

40-minute plan.
Props and safety.
Teacher questions.
A short exit check.

Check the source and rehearse before teaching.

FREE IMAGE GENERATION • WITH LIMITS

Ask Gemini for a teaching image

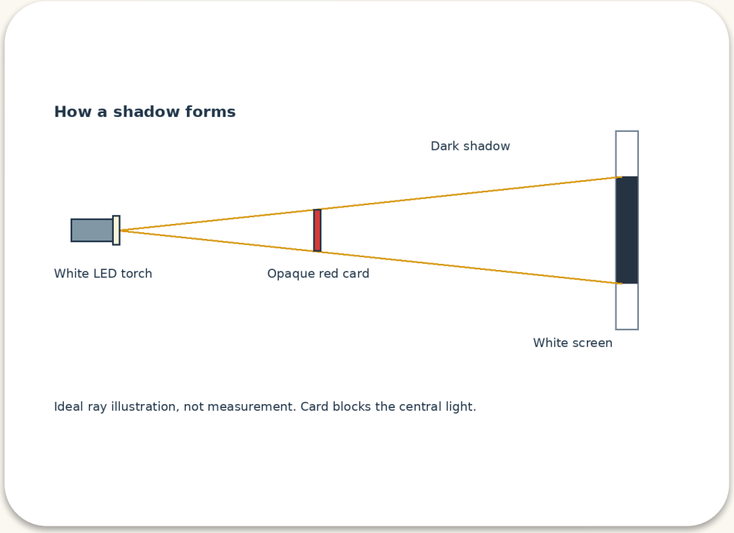
A clear diagram helps children see the idea. Ask for the exact setup, then check the order, the labels and the light path with your own eyes.

CLICK

Gemini → Images, where offered.
Paste the prompt, then download the image.

PASTE

White torch on the left. Opaque red card in the middle. White screen on the right. Put a DARK shadow on the screen. Check the labels.



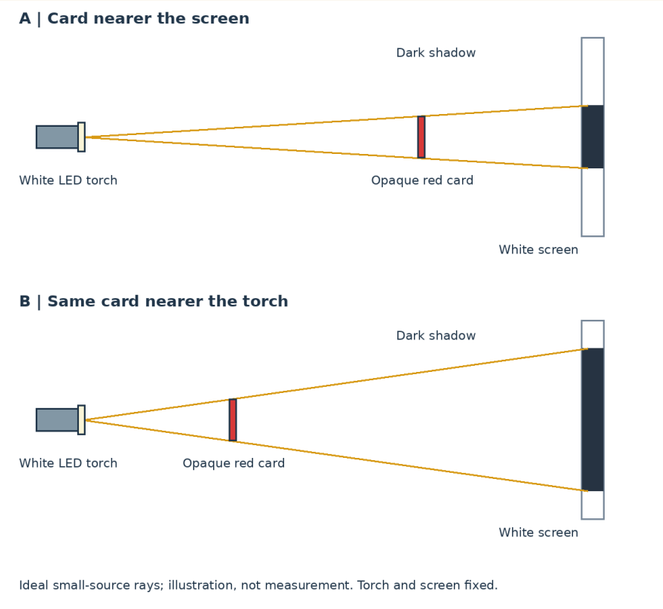
Compare with the original diagram in the kit.

A red opaque card does not make its shadow red.

AN IMAGE TIP YOU CAN REPEAT

Change one thing in the image, then compare

The fastest way to catch a mistake is to change one thing and compare. Keep everything else fixed, move one part, and look at what actually changed.



Change one thing.
Keep the source and screen fixed.
Compare before and after.

Move only the card nearer the torch. Keep the torch and screen fixed.

DOWNLOADABLE FILES • NO COWORK NEEDED

Use Claude to turn checked text into a real Word file

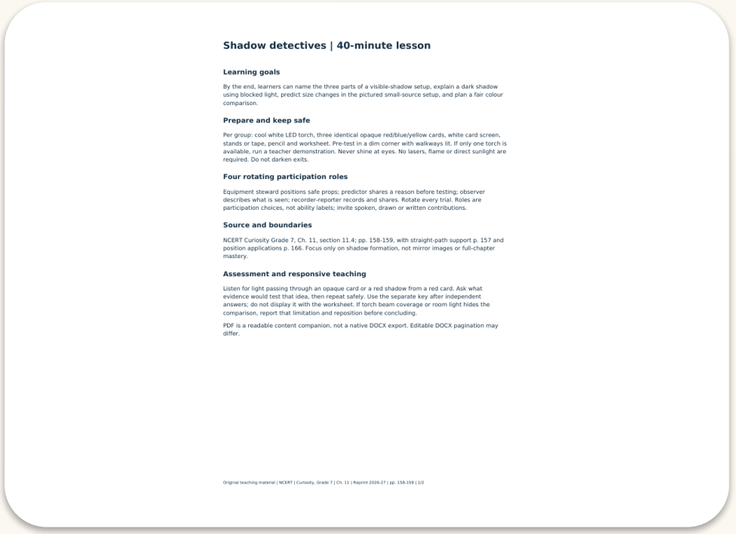
A chat answer is not a file you can hand over. Claude can make a real Word document on the free plan; ask for one file at a time, then open it.

CLICK

Settings → Capabilities → file creation ON if needed.
Attach the checked plan. Ask for one file.

PASTE

Create an actual downloadable lesson-plan.docx. Keep the approved science, timings and source references. Attach the file, not only text.



Shadow detectives | 40-minute lesson

Learning goals

By the end, learners can name the three parts of a visible-shadow setup, explain a dark shadow using blocked light, predict size changes in the pictured small-source setup, and plan a fair colour comparison.

Prepare and keep safe

Per group: cool white LED torch, three identical opaque red/blue/yellow cards, white card screen, stands or tape, pencil and worksheet. Pre-test in a dim corner with walkways lit. If only one torch is available, run a teacher demonstration. Never shine at eyes. No lasers, flame or direct sunlight are required. Do not darken exits.

Four rotating participation roles

Equipment steward positions safe props; predictor shares a reason before testing; observer describes what is seen; recorder-reporter records and shares. Rotate every trial. Roles are participation choices, not ability labels; invite spoken, drawn or written contributions.

Source and boundaries

NCERT Curiosity Grade 7, Ch. 11, section 11.4; pp. 158-159, with straight-path support p. 157 and position applications p. 166. Focus only on shadow formation, not mirror images or full-chapter mastery.

Assessment and responsive teaching

Listen for light passing through an opaque card or a red shadow from a red card. Ask what evidence would test that idea, then repeat safely. Use the separate key after independent answers; do not display it with the worksheet. If torch beam coverage or room light hides the comparison, report that limitation and reposition before concluding.

PDF is a readable content companion, not a native DOCX export. Editable DOCX pagination may differ.

Original teaching material | NCERT | Curiosity, Grade 7 | Ch. 11 | Reprint 2026-27 | pp. 158-159 | LO

Download it. Open it. Check every page.

A FREE MANUAL HAND-OFF

Move the classroom slides into Google Slides

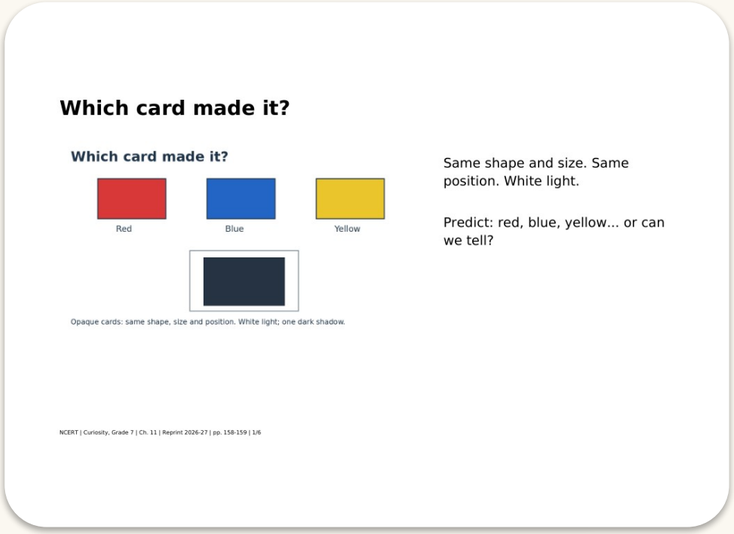
You do not need a paid AI link to use Google Slides. Make the deck, download it, upload it to Drive, and open it like any other file.

CLICK

Drive → New → File upload → choose the PPTX.
Open with Google Slides, where offered.

PASTE

Make six classroom slides from this checked lesson. Use my checked image. Keep questions unchanged. Attach a real downloadable PPTX.



Use classroom-slides.pptx as the worked example.

Uploading a PPTX is not a claimed AI connector.

SAME SOURCE • A SECOND CHECK

Make the questions, then check them with the key hidden

Writing questions is easy; trusting the answers is the hard part. So we make the key, then check it in a fresh chat that has never seen that key.

CLICK

Use the question prompt. Then open a fresh chat.
Give it the source and questions, but not the first key.

PASTE

Solve these questions. Check answerability, source, wording and marks. Show any disagreement. Do not copy or guess the first answer key.



Shadow detectives | pupil worksheet

Name/code: _____ Date: _____ Six original questions | 12 marks

Use words or labelled sketches. No numeric measurement is needed. Q1-Q2: recall; Q3-Q4: application; Q5-Q6: reasoning.

Q1 | Recall | 2 marks

Name the three things used to observe the card shadow in our setup.

Answer: _____

_____

Q2 | Recall | 2 marks

What makes the dark patch behind an opaque card?

Answer: _____

_____

Q3 | Application | 2 marks

An identical blue opaque card replaces a red one. White torch light and every position stay fixed. What happens to the shadow colour? Give a reason.

Answer: _____

_____

Original teaching material | NCERT | Curiosity, Grade 7 | Ch. 13 | Reprint 2026-27 | pp. 158-159 | LO

Six questions and a separate teacher key.

Two agreeing AIs are not proof. Check NCERT yourself.

A PRACTICAL LESSON FROM WALNUT

Check the key before you judge the child

This is the part I care about most. A tidy file can still be wrong, and a child should never lose a mark because the teaching material was.

A real review

A Walnut science review caught a wrong key heading and confusing wording.

Apply it here

Check “transparent objects never make shadows” against the chapter.

The teacher decides

A neat file can still be wrong. Check the meaning before marking.

A child should not lose marks because the teaching file is wrong.

OPTIONAL FREE CONNECTOR • PREFLIGHT REQUIRED

Connect Gmail only if your school allows it

Connectors are powerful, which is exactly why you go slowly. Connect only a mailbox your school permits, and only ever a safe test email, never parent mail.

CLICK

Claude → Customize → Connectors → Gmail.
Review the Google permission screen yourself.

PASTE

Find my test email titled Shadow lesson. List the materials it asks for.
Do not send, change or delete anything.



Six facts for shadow detectives

Focus: Shadow formation, section 11.4; Activity 11.4 and Table 11.2, printed pp. 158-159. This is one focused lesson, not coverage of the entire chapter.

1 | Straight paths

In this classroom model, light follows straight paths. An opaque card blocks paths to part of the screen. Source: pp. 155, 157.

2 | A visible shadow

Use a light source, a blocking object and a surface on which to see the dark region. A wall can be that surface. Source: pp. 158-159.

3 | Materials matter

Opaque objects usually give dark shadows; translucent objects give lighter ones. Some transparent objects can also give faint shadows. Source: p. 158.

4 | Colour is not revealed

For identical opaque cards under white light, changing the card colour does not make a matching coloured shadow. Source: p. 159.

5 | Position matters

Object position can change shadow size, shape and sharpness. With a small light source and fixed screen, a card nearer the source makes a larger shadow. Source: pp. 158-159; application supported by p. 166, Q5-6.

6 | A fair comparison

Keep the torch, screen, card size and card angle fixed when testing card colour. Change only the feature being investigated. Source: Activity 11.4 / Table 11.2, p. 158; teacher-designed control rule.

Official chapter: https://ncert.nic.in/textbook/pdf/gecu111.pdf

Original paraphrase and diagrams prepared by an AI assistant as workshop examples. No NCERT endorsement. Consult the official source for full context.

Original teaching material | NCERT | Curiosity, Grade 7 | Ch. 11 | Reprint 2026-27 | pp. 158-159 | 1/1

Use only a safe test email, not parent mail.

A reading task does not make the connector read-only.

GMAIL WITHOUT AN AI CONNECTION

No connection? Draft the email by hand instead

No connector, no problem. You can practise the whole email task by hand with the made-up message in the kit, and nothing is ever sent.

CLICK

Paste the made-up email from the kit.
Copy the checked draft into Gmail → Compose.

PASTE

Draft a short reply with Subject and Body. Confirm the materials and ask one clear question. Do not send anything.

Example .md recipe — readable text

```
# My shadow lesson recipe
- Use the NCERT source I provide.
- Start with the coloured-card hook.
- Check the science and cite the book.
- Keep the pupil copy and key apart.
- Show changes. Wait before sending.
```

Copy the words. A .md file is not an app you must run.

Leave the demonstration draft unsent.

No school mailbox connection is needed to practise.

FREE FILE / PHOTO UPLOADS • SYNTHETIC EXAMPLE

Turn a photo of answers into text before you mark

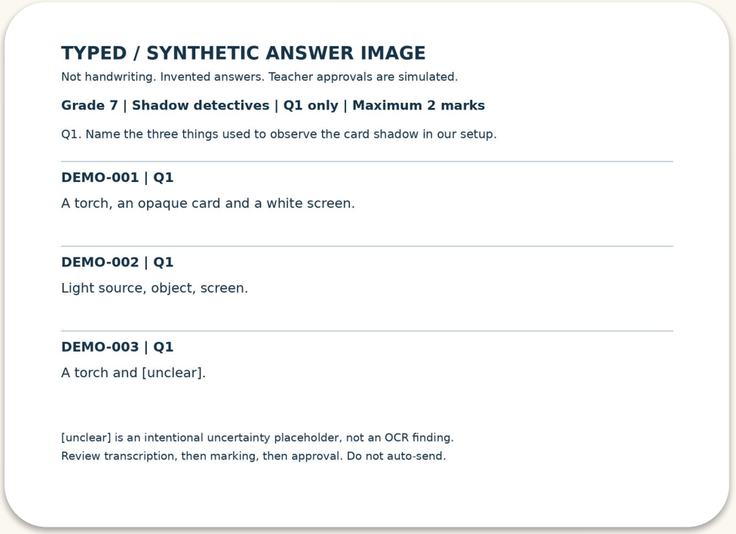
Marking from a photo has an order that keeps it honest. First get the words out as text and check them; the marks come only after that.

CLICK

Attach the sample answer image with +.
Ask for text. Compare with the original image.

PASTE

Read each answer exactly. Use [unclear] for a word you cannot read.
Keep the pupil ID and question ID. Do not mark yet.



TYPED / SYNTHETIC ANSWER IMAGE

Not handwriting. Invented answers. Teacher approvals are simulated.

Grade 7 | Shadow detectives | Q1 only | Maximum 2 marks

Q1. Name the three things used to observe the card shadow in our setup.

DEMO-001 | Q1

A torch, an opaque card and a white screen.

DEMO-002 | Q1

Light source, object, screen.

DEMO-003 | Q1

A torch and [unclear].

[unclear] is an intentional uncertainty placeholder, not an OCR finding.
Review transcription, then marking, then approval. Do not auto-send.

Actual typed-image OCR is included in the kit.

This is typed demo text, not a handwriting accuracy test.

SHEETS / EXCEL • KEEP DOUBT VISIBLE

Move only the approved rows into a test Sheet

Keep your doubt visible. Only answers you have actually approved move into the Sheet; anything unclear stays held and out of the export.

Import approved-Q1-only.csv into a new test Sheet.

Student ID	Question	Mark	Status
DEMO-001	Q1	2 / 2	Approved · example
DEMO-002	Q1	2 / 2	Approved · example

The XLSX is the three-row review log, not the approved export.

SAVE THE WORK FOR YOUR NEXT LESSON

Save the chapter as a Project or a Skill for next time

The real saving comes the second time. Save this chapter's source and rules as a Project, or an optional Skill, so your next lesson starts half-built.

CLICK

Projects → New Project → add source and instructions.
Optional: Customize → Skills → upload the kit’s Skill ZIP.

PASTE

Use this chapter recipe. Confirm the source, make one output, show your checks and wait before an outside action.

Example .md recipe — readable text

```
# My shadow lesson recipe
- Use the NCERT source I provide.
- Start with the coloured-card hook.
- Check the science and cite the book.
- Keep the pupil copy and key apart.
- Show changes. Wait before sending.
```

Copy the words. A .md file is not an app you must run.

The optional Skill contains instructions, not scripts.

A saved .md note is the simple fallback.

REFERENCE • CHECKED 3 NOVEMBER 2026

Free, optional, or paid? A quick reference

A quick map of what is genuinely free, what depends on your account, and what is paid, so no one is surprised in the middle of a lesson.

Free with limits	Uploads, ChatGPT/Gemini images, Projects; Claude file creation.
Standard free	Notebook sources and cited chat; Studio controls need preflight.
Account-dependent	Gmail/Drive access and native Google editor connections.
Paid, not required	Claude Cowork; paid-only add-ins, modes and upgrades.

Use the manual route when a button or permission is missing.

OPTIONAL • STANDARD ACCOUNT PREFLIGHT

Optional extra: let Notebook Studio draft a revision deck

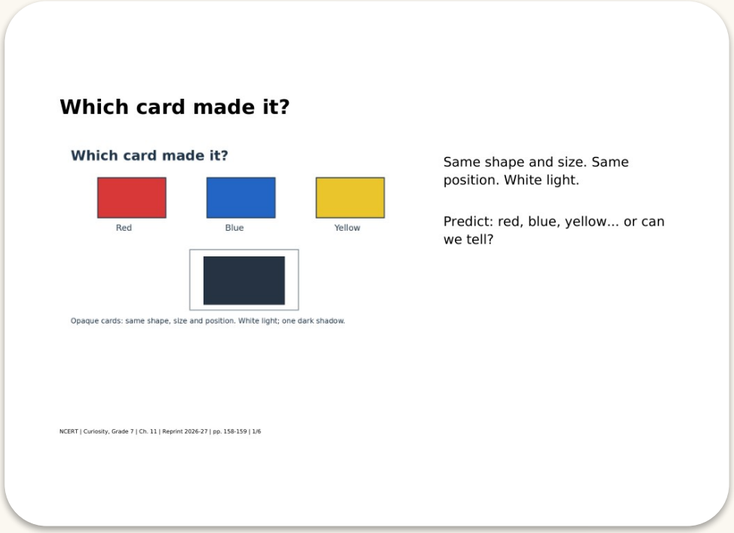
If your account shows it, Studio can draft a short revision deck for you. Treat it as a bonus, check every slide, and keep the prepared deck ready as a fallback.

CLICK

Studio → Slide Deck → choose only the chapter source.
After review, use … → download PDF or PPTX.

PASTE

Make a short Class 7 revision deck using only the chapter. Show the source for each science claim. Add no new facts.



Check every slide and test whether the PPTX is editable.

Outline co-creation is paid Ultra. Revisions may ignore sources.

WORD / PDF • OPTIONAL FILE TIP

Change a file's format, without changing the lesson

Sometimes you only need a different file type, not a different lesson. Convert it, then compare every page; layout can shift even when the words do not.

CLICK

In Google Docs: File → Download → PDF or Word.
For a PDF copy, use Claude Free file creation if offered.

PASTE

Copy the content into a Word file. Keep wording, numbering, blanks and marks unchanged. Flag unreadable parts. Do not improve the questions.



Shadow detectives | pupil worksheet

Name/code: _____ Date: _____ Six original questions | 12 marks

Use words or labelled sketches. No numeric measurement is needed. Q1-Q2: recall; Q3-Q4: application; Q5-Q6: reasoning.

Q1 | Recall | 2 marks

Name the three things used to observe the card shadow in our setup.

Answer: _____

_____

Q2 | Recall | 2 marks

What makes the dark patch behind an opaque card?

Answer: _____

_____

Q3 | Application | 2 marks

An identical blue opaque card replaces a red one. White torch light and every position stay fixed. What happens to the shadow colour? Give a reason.

Answer: _____

_____

Original teaching material | NCERT | Curiosity, Grade 7 | Ch. 13 | Reprint 2026-27 | pp. 158-159 | LO

Compare the new file with the original.

PDF-to-Word work may lose layout. Check every page.

TAKE-HOME CHEAT SHEET

Your take-home cheat sheet: five words

Keep this slide. Five plain words, in one place, for the next time any of this feels unfamiliar.

App	The tool you open.
Model	The AI system doing the work inside it.
Context	The information it can use for this task.
Project	A space for related chats, files and rules.
.md	A plain text note with simple headings and lists.

ONE LAST CHALLENGE

Don't trust this kit either

Everything here was made with AI and checked by hand, and it is still not perfect. Before you teach it, take one claim, one answer or one diagram and test it against the book. Catch one thing worth fixing, and you have understood the whole workshop. Trust, but verify, starting with us.