FACILITATOR GUIDE FOR TEACHERS AND CLUBS

# Crystal Basics teacher pack

Three short activities in careful observation. Compare light, record a measurement and read the evidence behind a locality label.

## A 30-45 minute session

Allow 5 minutes to introduce the three skills, 8-10 minutes per station, and 5-10 minutes for a group check-in. Work through the pages together or rotate through three tables in small groups.

## Set up before the session

Gather pencils, an ordinary desk lamp, white card and a ruler marked in millimetres. Optional: place two sturdy demonstration pieces and a safe item to measure on padded trays. The collection photos and a drawn ruler exercise let everyone participate with paper alone.

## Use sound pieces and ordinary light

Keep the pieces supported and let the leader move the lamp. Use photos for fragile or unknown materials. Keep everything dry and leave surfaces intact. Skip scratch tests, washing, UV lamps and chemical tests.

## Print only the pages you need

Print pack pages 2-4 for each learner or group, and keep pages 1 and 5 for the leader. Pages 6-8 are the original Collector's Starter Kit. Use actual size (100%) on A4 and print one side per sheet if learners are writing at a station.

## A follow-up record

The separate fillable observation sheet lets learners type a new record or print a blank copy. Open the PDF directly to use the editable fields.

https://rockandcrystalsecrets.com/downloads/crystal-observation-sheet.pdf

STATION 1 / LIGHT

# What does the light show?

Compare a clearer-looking piece with a dark, glossy one. Look for light reflecting off a surface and light appearing to pass through an edge.

**Name / group** _____ **Date** _____



**Collection label: Clear Quartz**

Rock & Crystal Secrets collection photo



**Collection label: Black Onyx**

Rock & Crystal Secrets collection photo

### Use the photos

Find a bright patch or edge on each piece. Compare the clearer and darker areas. Decide what the views leave open about light passing through.

### Use a lamp

Set a safe piece on white card. Keep it and your viewpoint still while your leader changes from front light to backlight. Then repeat with the second piece.

**1. Describe one bright feature on each piece.**

**2. What changed under the lamp? If using photos, what would you test next?**

**3. What about light passing through is still uncertain?**

STATION 2 / SIZE

# Make a measurement record

A size record needs a unit and a reference. Practise reading the ends of a ruler, then record what you can measure.

**Name / group** _____ **Date** _____

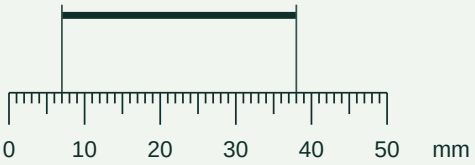


**Collection label: Rose Quartz**

Rock & Crystal Secrets collection photo. There is no scale in this view.

## Practice drawing

The bar is a drawing for practice. Read both ends on the printed ruler below, then subtract the smaller reading.




**Start** ____ **End** ____ **Length** _____ mm

## Choose your measurement task

With a safe piece, lay the ruler beside it on the same surface and read from directly above. Record length along the longest direction and width across it. Record thickness if the piece is safely supported for a side view.

With the photograph alone, write 'unmeasured' on the size line. In the space below, describe where you would put a ruler and which view you would take first.

**Piece or label**

**Length, width and thickness in mm, or unmeasured**

**Where would the ruler go?**

STATION 3 / LOCALITY

# Where was it found?

A locality is a place recorded for a piece. Practise deciding when a locality is documented, reported or unknown.

**Name / group** _____ **Date** _____



**Collection label: Malachite**

Rock & Crystal Secrets collection photo. Light and dark bands are visible. Locality is unrecorded.
https://australian.museum/learn/minerals/mineral-factsheets/malachite-in-gossan/

Atlas profile: https://rockandcrystalsecrets.com/mineral-atlas/peak-downs

## Read a museum record

The Australian Museum lists malachite specimen D.5837 from the Albert Shaft, Peak Downs Copper Mine, Queensland, Australia. The museum registered it in 1893.

The collection number connects that specimen to its record.

For each example, choose documented, reported or unknown. Give a reason using the evidence you were given.

| Example | Status | Reason |
|---|---|---|
| Australian Museum specimen D.5837 | | |
| Practice example: A seller says 'Queensland' and gives no record. | | |
| The photographed collection piece labelled Malachite | | |

**What would you ask to learn more about the collection piece?**

LEADER NOTES

# Discuss the evidence

Listen for clear descriptions, a unit with every measurement, and a reason for each locality status. The examples below are discussion prompts.

## 1. What does the light show?

Clear Quartz shows clear-to-cloudy areas and bright faces. Black Onyx shows a dark patch, reddish-brown areas and a bright right rim. A bright edge can be a surface reflection. With a lamp, record what participants actually saw and where it appeared. The photos alone leave transmission uncertain.

## 2. Make a measurement record

The practice bar runs from 7 mm to 38 mm. Its length is 31 mm. For the Rose Quartz photo, 'unmeasured' is the useful entry. Accept a plan that places a ruler beside the piece, keeps both on the same surface and uses a square-on view.

## 3. Where was it found?

D.5837 is documented by a museum record linked to the collection number. The practice seller statement is reported because it names a place without a supporting record. The owned Malachite photo is unknown for locality. A label and colour pattern do not establish a source.

## Check each station

| | |
|---|---|
| **2 points** | Specific observation or answer, with its evidence or measurement unit. |
| **1 point** | Useful detail with an incomplete explanation, source or unit. |
| **0 points** | Ask for a new attempt with a visible clue or recorded source. |

## One question to finish

Ask each learner which detail they would record next and how it would help. Use the Starter Kit on pages 6-8 to label, photograph and compare more specimens.

# Make a specimen label

Print at actual size and cut along the dashed edges. Copy the seller's wording and write 'unknown' for details you cannot check. Use the same specimen ID on the label, photos and observation sheet.

**SPECIMEN LABEL**

**Specimen ID** _____ **Date acquired** _____

**Name on original label** _____

**Locality as recorded** _____

**Source or treatment note** _____

**SPECIMEN LABEL**

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**Source or treatment note** _____

**SPECIMEN LABEL**

**Specimen ID** _____ **Date acquired** _____

**Name on original label** _____

**Locality as recorded** _____

**Source or treatment note** _____

Try A-001 for your first ID. Save a matching photo as A-001-front.jpg.

# Photograph a specimen

Use a plain background and soft daylight. Keep the stone steady and match the lighting when you compare two specimens.

**Specimen ID** _____ **Date** _____

- [ ] **Whole specimen**
  Frame the complete piece from the front.
- [ ] **Scale in millimetres**
  Lay a ruler beside the piece on the same surface. Show the marks clearly.
- [ ] **Other views**
  Photograph the back, side and underside where you can turn the piece safely.
- [ ] **Close-up details**
  Focus on a colour boundary, a crystal tip or an existing break face.
- [ ] **Change the light angle**
  Keep the camera still and move the light. Note which bright patches move.
- [ ] **Save the originals**
  Use the specimen ID plus the view in each filename, then copy the label wording.

## Capture notes

Record the light, filenames and any view you want to retake.

# Amethyst and purple fluorite

Follow an edge in each photo. Find where the colour changes and where you see a reflection. Write down one visible clue before reading the reference below.



**A Amethyst**



**B Piece labelled Rainbow Fluorite**

Photos from the Rock & Crystal Secrets collection. Photo B shows blue and cream tones here. Purple fluorite can overlap amethyst in colour.

## What can you see?

| | Photo A | Photo B |
|---|---|---|
| **Shape and edges** | | |
| | | |
| **Colour and shine** | | |
| | | |

### Compare with these reference clues

Amethyst can grow as six-sided prisms with pointed ends. Fluorite often grows as cubes. Polishing can hide original growth faces. A photo gives you clues to follow up on a specimen.

**What would you check in a second photo?**

**rockandcrystalsecrets.com/library/compare/amethyst-vs-purple-fluorite**