

EduTrend Contents

W4C · EARTH SCIENCE & GEOLOGY · PRIMARY

Rock Detectives

How can we tell rocks apart?

Ages 7–10 | Level: Foundation | 60 minutes | Groups of 3 · up to 30 | Activity 01

Inside: activity at a glance · step-by-step session plan · facilitator notes · 3 pupil worksheets · assessment checklist

ACTIVITY 01 · AT A GLANCE

Rock Detectives

Pupils become rock detectives. They look closely at six rock samples, test how hard they are with a scratch test, check whether they have grains or crystals and see how much water each soaks up. They use their results to sort the rocks and to choose the best rock for building a garden wall.

Learning outcomes

By the end of the session pupils can:

- describe rocks using words such as hard, soft, grainy and crystals;
- carry out a scratch test and a water test fairly;
- sort rocks into groups using evidence;
- choose a rock for a job and explain why.

KEY WORDS

rock · grain · crystal · hard · permeable · property · test

CURRICULUM LINKS

Science: rocks and soils, properties of materials. Maths: sorting and tables. Geography: local building materials.

1	2	3	4	5	6
QUESTION What do we want to know?	**OBSERVE** Look and handle	**PREDICT** What might happen?	**TEST** Try it fairly	**RECORD** Measure and note	**EXPLAIN** Read the evidence

Materials (per group)

- 6 rock samples: granite, sandstone, chalk, slate, marble, pumice (numbered)
- Hand lens, iron nail, coin
- Pipette and cup of water, paper towel
- Tray
- Worksheets 1, 2 and 3

Before the session

- Number the rock samples and keep a key.
- Wash and dry the rocks.
- Prepare water cups and pipettes.
- Try each test yourself.
- Collect photos of local buildings made from stone.

SAFETY

Scratch tests on a tray, away from faces. Do not throw or drop rocks. Wash hands after handling chalk.

ACTIVITY 01 · SESSION PLAN

Step by step

Timings are for a 60-minute session. Rocks can be reused every year; store in labelled boxes.

Time	What happens	Say or ask
0–5 min Hook	Show a photo of an old stone wall and a crumbling one. Why did one last longer?	*"Are all rocks the same?"*
5–15 min Observe	Groups look at each rock with a hand lens and describe colour, grains and crystals.	*"What words describe this rock?"*
15–30 min Scratch test	Groups try to scratch each rock with a fingernail, a coin and a nail and record which scratches it.	*"Which rock is hardest? How do you know?"*
30–45 min Water test	Groups drip ten drops of water onto each rock and watch whether it soaks in.	*"What is happening to the water?"*
45–55 min Sort and choose	Groups sort the rocks and choose the best one for a garden wall.	*"Which tests helped you decide?"*
55–60 min Share	Groups present their choice with evidence. Worksheet 3.	

CHALLENGE CARD (print or copy onto the board)

A builder needs a rock for a garden wall that will stand in the rain for 100 years. Test the six rocks and recommend one. Give two pieces of evidence.

ACTIVITY 01 · FACILITATOR NOTES

The geology in brief

Rocks are made of minerals. Some, like granite, contain interlocking crystals and are very hard. Others, like sandstone and chalk, are made of grains stuck together, and water can soak into the gaps between the grains. Rocks that let water in are called permeable.

When water soaks into a rock and then freezes, it expands and can crack the rock. This is one reason soft, permeable rocks wear away faster. Builders choose hard, non-permeable rocks such as granite or slate for walls, roofs and steps.

Common ideas to listen for

- "All rocks are hard." Chalk can be scratched with a fingernail.
- "Heavy rocks are always hard." Weight and hardness are different properties.
- "Pumice is not a rock because it floats." It is a volcanic rock full of air bubbles.

Adapting the activity

Support

Use four rocks and a picture word bank.

Stretch

Weigh each rock dry and after soaking in water for 10 minutes and calculate how much water it absorbed.

WORKSHEET 1

Observe the rocks

Name: _____ Class: _____ Date: _____

Use a hand lens. Describe each rock.

Observations

Rock	Colour	Grains or crystals?	Other features
1			
2			
3			
4			
5			
6			

WORKSHEET 2

Test the rocks

Record your scratch and water tests.

Results

Rock	Scratched by fingernail?	Scratched by coin?	Scratched by nail?	Water soaks in?
1				
2				
3				
4				
5				
6				

Was it a fair test?

Tick the things you kept the same:

- ☐ same number of water drops
- ☐ same pressure when scratching
- ☐ clean dry rocks

WORKSHEET 3

Geologist's log

Colour the box that is true for you.

What I can do

I can...	Not yet	Nearly	Yes!
describe a rock			
test hardness fairly			
say if a rock is permeable			
choose a rock for a job			

The best rock for the wall is _____ because

FOR THE TEACHER

Assessment checklist

Use during the session. One sheet covers up to eight pupils; copy as needed.

Pupil	Describes accurately	Tests fairly	Uses evidence to choose

Suggested codes: W = working towards · E = expected · G = greater depth

ABOUT THIS ACTIVITY

Rock Detectives is a sample activity from the EduTrend Contents W4C Earth Science & Geology programme (primary, level: foundation). Every activity in the programme follows the same format: a practical challenge, a clear session plan, facilitator notes and ready-to-print worksheets, so that teachers, club leaders and parents can run it without extra preparation.

Full 15-, 20- and 32-week programmes are available from EduStore at edutrend.org.

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