Teacher Resource

Crystal Creation

Focus Questions

Discuss the BTN story as a class and record the main points of the discussion. Students will then respond to the following:

1. What are crystals?
2. Give two examples of crystals.
3. Sugar is a type of crystal. True or false?
4. What is the most common way crystals are formed?
5. What kind of structure do crystals have?

Activity: What do you see, think & wonder?

After watching the BTN Crystal Creation story hold a class discussion, using the following as discussion starters:

- What do you THINK about what you saw in the story?
- What does this video make you WONDER?
- What did you LEARN from the BTN story?
- Think of three QUESTIONS you have about the story.

Questions and Answers

All scientific discoveries start with a question! As a class, come up with some questions you think scientists ask and solve. Organise the questions into common themes. As a class, make a list of questions that you would like to ask a scientist.

After watching the BTN story start a discussion, asking what your students learnt and what they want to know. Students can use the KWLH chart to help organise their information.

What I know	What I want to know	What I learnt

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KEY LEARNING
Students will learn about the structure of crystals. Students will guide their own scientific investigation into crystals.

CURRICULUM
Science – Year 4
Pose questions to explore observed patterns and relation ships and make predictions based on observations

Science – Years 5 & 6
Pose investigable questions to identify patterns and test relationships and make reasoned predictions

Scientific knowledge is used to solve problems and inform personal and community decisions.

Activity: Crystal Glossary

Students will brainstorm a list of key words that relate to the BTN Crystal Creation story. Here are some words to get them started.

CRYSTALLOGRAPHY	PATTERNS	GEOMETRIC
LATTICE	CRYSTALS	ATOM

Ask students to write what they think is the meaning of each word (including unfamiliar words). They will swap definitions with a partner and ask them to add to or change the definition. Check these against the dictionary definition.

Further activities for students:

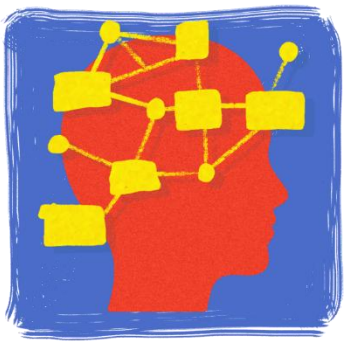
- Students will add to their glossary by downloading the transcript for the BTN Crystal Creation story and highlight all the words that relate to the topic.
- Who studies crystals? Explore the job of a crystallographer. Later in this resource students will think and behave like crystallographers (*A crystallographer is a scientist who specialises in the study of crystals*).

Activity: Examining Crystals

Provide your students with opportunities to examine crystals and make observations about them. Students may want to bring crystals in from home if they have some or they can visit a museum (real or virtual) to explore their crystal collections.

Spark a discussion about crystals in your classroom by using one or more of the following questions. Record your students' responses on a mind map, with the word CRYSTAL in the centre.

- Have you ever looked closely at crystals or collected them?
- Where would you look to find crystals?
- What do crystals feel and look like? Describe the characteristics of crystals. Are they heavy or light? What colour are they? Do they have texture?
- How are crystals the same and how are they different? Use a Venn diagram to record what you discover.
- What can you use crystals for?
- What is the relationship between crystals, minerals and rocks?



Encourage students to discuss what they already know about crystals and prompt them to ask questions they might have. Record your students' responses on a KWLH chart.

Activity: Scientific Investigation

Students will guide their own investigation into crystals and present their findings in an interesting way. Below are some ideas to get students thinking about the direction of their investigation.

- **DIY crystal growing** – Grow sparkling crystals and explore crystal structure using this Science Week step-by-step investigation. Link to instructions.
- **What does sugar, salt, snowflakes and quartz all have in common?** Use a Venn diagram to compare and contrast different types of crystals.
- **Up close with crystals –** Use a magnifying glass to examine the fine details and structures of crystals. Record what you see including shapes, colours, patterns, and surface textures. What do you notice? Record as much as you can about what you see.
- **If crystals could talk –** Imagine you are interviewing a crystal. What questions would you ask a piece of mineral quartz or a snowflake? Find answers to those questions.
- **The story of a crystal -** Write or illustrate a story about crystals (choose one type of mineral crystal, for example, amethyst, malachite, quartz or amethyst). Use story telling techniques to teach others about crystals, how they form and what they tell us about Earth's history.

Activity: TEDEd – Watch, think, dig deeper and discuss

Many crystals have signature shapes— like the cascade of pointed quartz or a pile of galena cubes. Every crystal's atoms have a defining feature: their organised, repeating pattern. The pattern isn't restricted to minerals- sand, ice, metals and DNA also have crystalline structures. So, what causes them to grow into these shapes again and again? TEDEd dives into the unique properties of crystals.

Students will watch this TedEd video How do crystals work? to learn more about crystals.

After watching the video students can test their knowledge on crystals by doing the related TEDEd quiz.

TedEd video How do crystals work?

Useful Websites

- Science stories – BTN
- DIY Science – National Science Week
- Crystal Investigation – Oliphant Science Award
- How do crystals work? – TEDEd
- How to squeeze electricity out of crystals – TEDEd
- National Science Week 2025