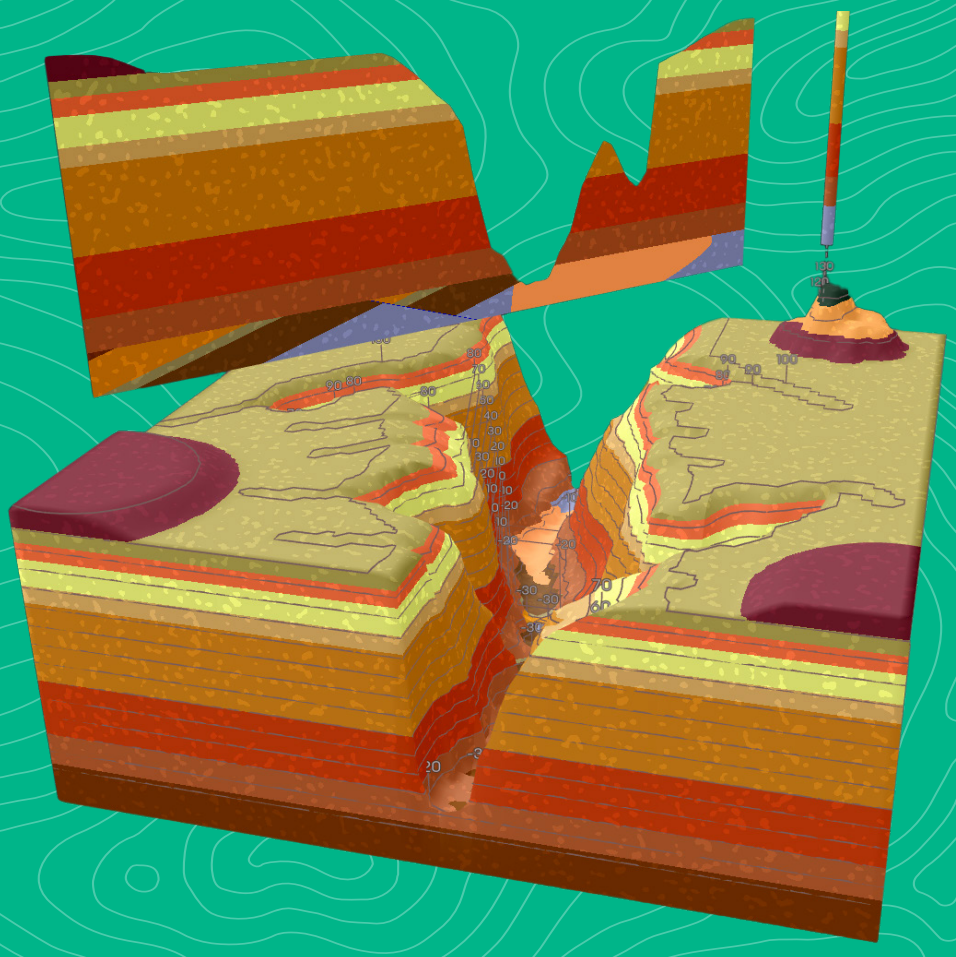
VisibleGeology

EARTH SCIENCE WEEK

# Lesson plan

# Exploring the geology of the Grand Canyon



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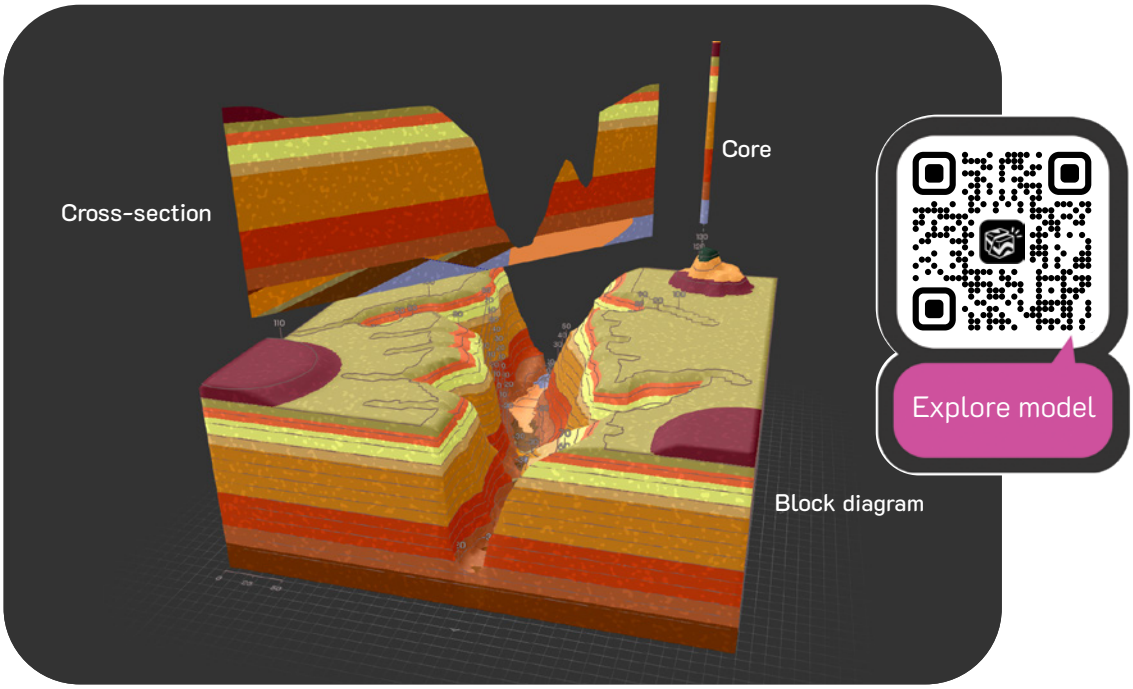
# Modelling geological structures with Visible Geology

Understanding the complexities of geological structures and processes is fundamental to the study of earth sciences. Visible Geology, offered by Seequent, provides an innovative and interactive way to explore these concepts through 3D models. Much can be learned about the geological history and processes that shape the land by examining 3D geological models, cross-sections, and core samples.

## Exploring the Grand Canyon Model

1. Examine the geological model, cross-section, and core models of the Grand Canyon (available at https://bit.ly/ESW-VisibleGeology). Make observations of each model as you rotate and zoom in and out using your mouse:




   a. Geological model (3D visualisation that shows the different layers and features inside the Earth)

   b. Cross-section (a slice or cut-through view of the model that displays internal geological layers that occur along a slice)

   c. Core (vertical column that shows geological layers at a specific point)

*To hide or show the cross-section and core models at any point, select "xSection" or "Core" from the left side menu. Then, select "View" at the bottom of the right menu.*

**2.** Make inferences from the model:

? What colour layer is the youngest? Explain your reasoning.

? What colour layer is the oldest? Explain your reasoning.

? Choose 2 features shown on the model and describe what geological events or processes might have occurred to form these features of the Grand Canyon.

**Feature 1**
Draw and/or describe the feature and then explain how it might have formed.

**Feature 2**
Draw and/or describe the feature and then explain how it might have formed.

3. Explore the geological history of the Grand Canyon:
    a. Select the “History” button from the left side menu.
    b. Select 1. Beds.
    c. Travel through time by selecting 2, then 3, and so on to see a portrayal of how the Grand Canyon formed.
4. Consider the following questions as you are exploring the model:

? How do the different layers inform us about the geological history and processes that formed the Grand Canyon?

? What do the variations in the layers (colour, thickness) indicate about past environments and events, such as erosion, deposition, and tectonic activities?

? What are the benefits of creating a cross-section and a core of the model? What do you think mappers consider when deciding where they will add these elements?