

# Barringer crater

## Key Assessment Task Marking criteria

**1** There were no volcanic rocks in the area.

**2** Grove K. Gilbert was the chief geologist for the US government. Daniel Barringer was a successful mining engineer.

**3** Two examples of data used by Grove K. Gilbert:

- The volume of rim rocks was about the same as the volume of the hole.
- There were no magnetic effects.

**4** Three examples of data used by Daniel Barringer: (You should have chosen two)

- Meteorite pieces (rocks very different from Earth rocks) were found in the surrounding area.
- Rocks and minerals found in the crater were of types known to be created by a large pressure and temperature.
- The way the materials had been thrown out to form the rim, so that the older material was on top and the younger material at deeper levels.

**5** Barringer wrote a paper and published it in the *Proceedings of the Academy of Natural Sciences* in Philadelphia. He gave presentations, including one to the National Academy of Sciences at Princeton.

## 6

Reason	Correct?
Scientists thought the crater was a volcano.	
They did not know of any other impact craters on Earth.	✓
They knew that the craters on the Moon were impact craters.	
They had not visited the crater and checked the data.	✓
There was a lot of data suggesting it was caused by a steam explosion.	

## 7

Reason	Correct?
Gilbert thought Daniel Barringer had dropped meteorite pieces around the crater to convince people it was an impact crater.	
He was a highly qualified scientist and Daniel Barringer was a mining engineer.	✓
He thought he would lose the respect of other scientists.	✓
He did not like Daniel Barringer.	
He was a very poor scientist.	

**8** Barringer had spent a lot of money – over \$600,000 – his own money and money belonging to other investors.

Or: He did not want to damage his reputation with scientists as he had published papers and given presentations claiming the crater was caused by a meteorite.

**9** A geologist, George P. Merrill, was convinced by the impact explanation and he visited the crater. His investigations supported the impact crater theory. Over the next 30 years many experienced scientists checked the data. In 1960, Eugene Shoemaker found rare minerals in the crater which cannot be formed by volcanoes, but could have come from a meteorite.

**NOW** Look again at the learning outcomes for this activity.

*Which learning outcomes have you achieved?*

*Which learning outcomes can you improve?*