

Teachers Notes: 12-14

This Lesson Pack is designed to support lessons in Science, Geography and Citizenship. It is meant to stimulate thought and discussion amongst students about the role of diamonds in today's global society.

Ideally the pack would be used to lead a combined subject lesson, especially where schools have a Citizenship Co-ordinator keen to work with other subject departments, but specialist teachers will find it easy to identify the components of value to them.

The PowerPoint presentation will help you refresh children's knowledge and introduce new topics. We look at the story of diamonds and some of the contemporary issues relating to the use of diamonds in love and war. We concentrate on people who are involved with diamonds on their way from mine to showcase.

The worksheets and factsheets expand on themes developed through the PowerPoint presentation.

We recommend that, if possible, you set aside two lessons for the diamond topic. Because the pack is multimedia and cross-curricula, there is benefit in asking your teaching colleagues to help you.

Lesson 1

Show the introductory PowerPoint presentation and its accompanying video clips. More diamond-related video clips can be found at www.videoforschools.com.

Lesson 2

In this extension lesson, ask children to complete one of the worksheet based projects we offer, or a project of your own. The Internet is a useful source for information about diamonds, and the ethical issue of conflict diamonds.

(key sites: www.diamondfacts.org www.debeers.com www.dtc.com www.forevermark.com)

Further Project Ideas

The Diamond Trading Company is keen to hear from schools wishing to continue their investigations into diamonds and is considering setting up a partnering scheme with schools in Namibia and Botswana. If you would like to take advantage of the scheme please email enquiries@diamondsforschools.com.

Answers

Worksheet 1 – Diamond Properties

Q: Use the Internet and your school library to complete this table of physical properties.

A:	Diamonds	Graphite
Hardness (on the Moh Scale)	Hardest (10)	Softest (1-2)
How formed	Formed billions of years ago 125 – 200 kms beneath the ground. The temperature and pressure were so great that carbon turned into diamonds	Metamorphism of organic material in rocks – often limestone
Transparency	Transparent	Opaque
Lustre	Brilliant	Metallic, earthy
Cleavage	Perfect in four directions	Perfect in one direction
Specific Gravity	3.5 g/cm cubed (above average)	2 g/cm cubed (below average)
Electrical Insulation	Excellent	Excellent
Thermal conductivity	Excellent	Good
Lubrication	Poor	Excellent
Melting Point	3820 degrees Kelvin	3948 degrees Kelvin
Lattice structure	Framework structure	Slippery sheets
Uses	Jewellery, cutting tools, abrasives	Steel making, brake lining, pencil lead, lubricants

Worksheet 2 – Sorting Diamonds

1. Q: In diamond valuing what is an inclusion?

A: An impurity found inside the diamond which could be another crystal or mineral

2. Q: Here are examples of a range of qualities (clarity) in rough diamonds, starting with very clean stones on the left to poor quality on the right. Using this example put the following stones in order from the best quality (clarity) (1) to the worst quality (clarity) (6).



Diamonds for Schools

A: (left to right) 2,5,1,3,4,6

3. Q: Which of the following tools are likely to contain diamonds to make them work better? Drill bit, Chisel, Screwdriver, Saw blade, Awl, File, Scalpel, Hammer, Spanner, Die (for making wire) Polishing Wheel, Potters Wheel, Lawnmower, Lathe

A: Drill-bit, Saw blade, File, Scalpel, Die, Polishing Wheel, Lathe.

4. Q: Name three colours of natural diamonds.

A: Colourless (white), Yellow, Brown

5. Q: Once a diamond is polished, what is the name of the polished face?

A: Facet

6. Q: What does this face do?

A: Acts as a mirror, reflects and refracts light

7. Q: Name the following polished models

A: (Left to right) Round Brilliant, Pear, Oval, Princess, Emerald, Heart

8. Q: How old are diamonds?

a) 1 Million years b) 2 Billion years c) 3 Billion years d) 5 Million years

A: 3 Billion Years

9. Q: How did they get to the surface of the earth?

A: Volcanic eruption

10. Q: Where in the world would you find diamond mines?

A: Canada, Australia, Botswana, Namibia, South Africa, Angola, DR Congo, Tanzania, Russia.

11. Q: What was the name of the world's largest rough diamond?

A: The Cullinan

12. Q: Where today would you see the two largest polished stones that came from it?

A: The Crown Jewels, at The Tower of London