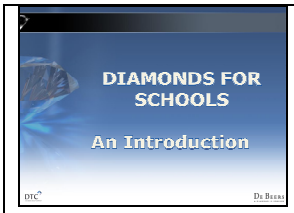
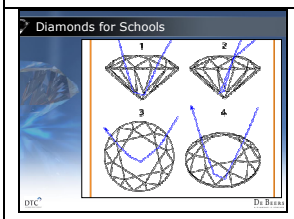
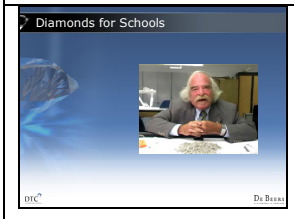
Diamonds for Schools - Preview

	**DIAMONDS FOR SCHOOLS MASTER PRESENTATION** This PowerPoint presentation is best used to support teaching from 9-14 yrs, although it does offer a useful introduction for anyone interested in the history and techniques of diamond sorting and polishing. For further information please go to www.diamondsforschools.com. To get the best out of this presentation please make sure you have your SOUND ON and your computer has the latest version of Adobe Flash Player, free download available from: (http://www.adobe.com/shockwave/download/download.cgi?P1_Prod_Version=ShockwaveFlash)
	When a diamond is born it is 'rough' and doesn't have the full brilliance we associate with diamonds used in jewellery.
	But once it has been polished, it shines like fire!
	That fire is created by light entering the diamond and reflecting back into our eyes. Here is a drawing of the different paths light can take in a diamond. But the light always focuses on the eye of the viewer. **Note:** A well polished diamond reflects light back at the viewer. A poorly polished diamond absorbs or wastes light in internal reflections.
	If we look closely at a diamond we can see how it is polished into lots of flat surfaces or 'facets'. Think of facets as mirrors and windows, at the same time. The way light shines out from a diamond is what makes them so attractive. Let's meet a diamond polisher now. His name is Gabi and he is one of the most famous diamond polishers in the world.
	**Video: polishing.wmv** **Note:** Gabi Tolkowsky, one of the world's most experienced diamond polishers, describes how light is trapped, reflected and refracted. He explains how he uses these techniques to harness light to reflect brilliance back to the viewer and, in his words, "create fire".

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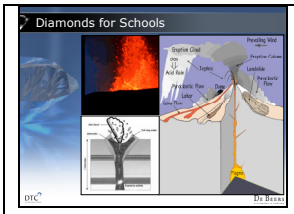
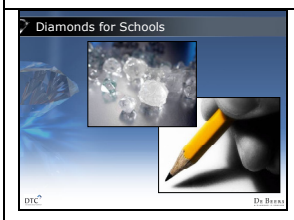
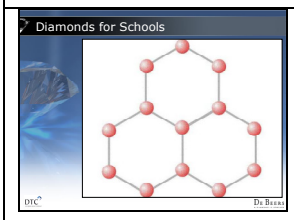
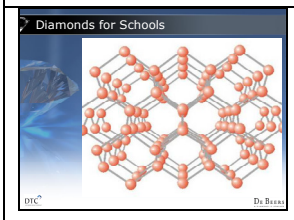
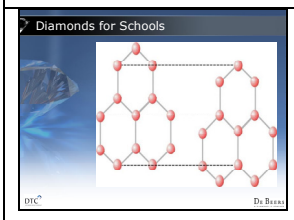
	Diamonds were made deep in the Earth, billions of years ago, when it was young and still hot and changing shape. Deep down, where is it still incredibly hot and the pressure is high, rocks were squeezed and heated to make rough diamonds. Diamonds are the hardest material we know. **Note:** Diamonds are a single crystal of carbon. Carbon is one of the commonest elements and is what makes trees, animals and us. When carbon is heated and pressed to incredible pressures it can change. It can make diamonds, the hardest material we know about.
	Diamonds are the hardest material on Earth. And graphite, found in pencils, is the softest. They both have the same chemical composition. Can we think why they are so different? **Note** • Diamond and Graphite have similar compositions, but their structures are different. • Diamond structure is strong and resists pressure. Graphite is the opposite • If you have some modelling materials you could demonstrate this to your children. • The answer is on the next slide
	The answer is in the way the atoms inside all materials are linked together. Diamonds and Graphite are both made of carbon. This picture shows how the atoms of carbon link together…
	And in a diamond they look like this. The structure of a diamond crystal is very tight and strong. Imagine trying to push these together, it's very difficult. Diamonds are so tough they can only be polished by another diamond!
	But the lattice in graphite is weak and slippery. Imagine pushing on these. They would move sideways. That's why pencils leave a mark on paper.
	Today diamonds are mostly mined in Africa, especially in Namibia and Botswana. But they can be found in lots of other places too. The red dots on this map show where the main diamond mines are. Let's see if we can find two of the most important mining areas - Namibia and Botswana.

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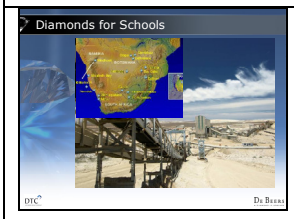
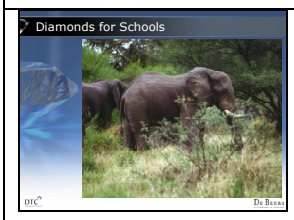
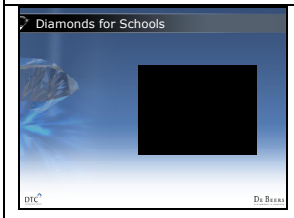
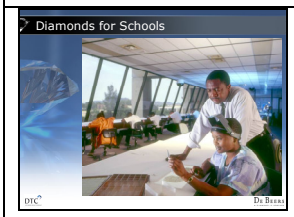
	Note Roughly half of all diamonds originate from central and southern Africa, although significant sources of the mineral have been discovered in Canada, Russia, and Australia. Strangely, diamonds are often found in remote areas. But where big modern mines have grown up, the money made from selling diamonds has helped villages and towns build schools, hospitals and roads.
	Here they are, in the south of Africa. Until diamond mines were built these countries were very poor. But today, much of the income made from selling diamonds overseas is used to create schools and work.
	Children have better lives and lots of money is spent in restoring the environment after mining, and conservation schemes for local wildlife.
	When diamonds are mined, they are called ROUGH diamonds and they need to be sorted out ready for sale. Every diamond mined, anywhere in the world, is different to every other. Their colours and shape depend on the way they were made, and the gases around them when they were in the ground. Different gases make different colours. The next slide describes the basic shapes of rough diamonds, and the work of Diamond sorters. It is introduced by Gareth Jones who works in the London Diamond Academy…
	**Video: Sorting.wmv** **Gareth Jones** **Note** Gareth Jones explains in simple terms what diamond shapes are and how diamonds are sorted.
	Colour and clarity are important in diamonds So too are the size and weight. In the next slide Gareth is going to talk about how diamonds are weighed in Carats, and how the rough diamond 'model' is cut into different polished shapes …
	**Video: weighing.wmv** Gareth talks about weighing, carats and three different models of polishing.

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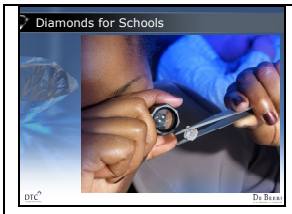
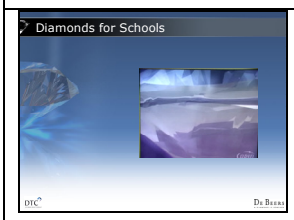
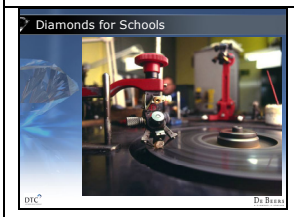
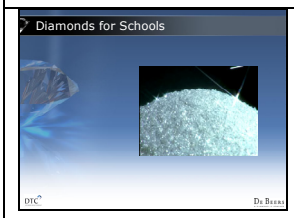
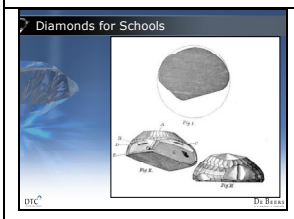
	In the next slide Gareth talks about assessing the quality of a rough diamond and its properties of clarity and colour. He is concerned with the purity of the stone.
	**Video: quality.wmv** Gareth talks about assessing the quality of a rough diamond and its properties. Clarity and Colour
	Diamond sorters look for: CLARITY CARAT – OR WEIGHT CUT COLOUR These are called the '4C's' and are used to sort and value all diamonds. The next slide reminds us of that…
	**Video: 4 C's** **Note** The four C's are: CLARITY CARAT – OR WEIGHT CUT COLOUR
	Once the sorting process is complete, diamonds are sold to cutting centres where the all important polishing is done. In the next slide Gabi describes how he has to talk to each diamond in order to work out how to cut it. Remember he only has one chance!
	**Video: Talking.wmv** **Note** Gabi explains why diamonds have personalities. He explains how they were formed, the different types, and how they are used to make jewellery.
	Gabi has cut some of today's most important diamonds. But let's go back 5,000 years to look at one of the oldest and still famous diamonds - the Koh-i-Noor. It was found in India and legend says it was originally owned by Krishna, the lord god of India. But it was stolen from him whilst he was sleeping.

	Note But a more likely explanation is that it was found in a river bed as that is where most early diamonds from India are found, having been washed out of the earth over millions of years. India is not now a major diamond mining centre.
	The Koh-i-Noor was the largest diamond in the world when it was found. It was passed from Indian emperor to emperor until finally it was offered to Britain's Queen Victoria, then Empress of India. This is a drawing of the 'model' of the rough diamond showing the polisher's notes for cutting and polishing it into the famous stone it is today. It lost nearly half its size and weight in the polishing process. You can see the Koh-i-Noor diamond in the Crown Jewels display at the Tower of London. **Note** Not all diamonds are that big though. 99% are smaller than 1 carat (2gms). The Koh-i-Noor is now part of the Crown Jewels.
	If you visit the Crown Jewels display at the Tower of London, you'll also see several more famous jewels: Cullinan 1 and the Cullinan 2, both cut from the Cullinan diamond which was given to the Royal Family. **Teachers Note** If you are visiting the Tower of London, ask children to find the diamonds we have referred to, and to draw them during their visit or from memory afterwards.
	But diamonds are not just found in expensive jewellery. Many smaller or low quality diamonds are used to cut other materials, like glass. Fine diamond cutters are used to shape contact lenses, for example.
	Diamonds are so important that many scientists and engineers spend time finding out new opportunities to use diamonds in everyday life.
	So what have we learned? • That diamonds are the hardest material on earth • They were formed billions of years ago • They are mostly mined today in Africa • Where income is used to help develop the local communities • Rough diamonds are sorted by the 4C's • They are weighed in Carats • And polished scientifically to maximise the reflection of light .. And then used in fashion and industry to give us all great enjoyment. One of the biggest companies that sorts, values and sells rough diamonds is the Diamond Trading Company, known as the DTC. Let's end with a short look at how the DTC is involved with everything we've learned today……. Thank You.

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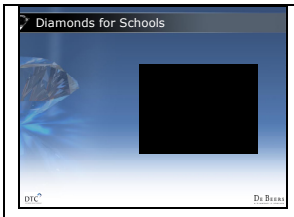
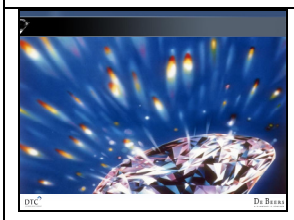
	**Video: dtc.wmv** A short look at the trail from mine to market, produced by the Diamond Trading Company
	**The End**