KRONOSAURUS KORNER
RICHMOND OUTBACK QUEENSLAND

Year 6 Teacher's Notes

Rationale:
The students will investigate how sudden geological events, such as meteorite impacts, have affected Earth's surface. They will learn how geologists have found evidence for a large meteorite impact 66 million years ago - the KT event. This devastating impact created fires and pushed large amounts of debris into the atmosphere. Dust blocked out the sun, stopping photosynthesis in plants, collapsing food webs and resulting in the extinction of non-avian dinosaurs and other creatures. The students will research information in books or online sources to create multimodal text (two labelled posters) featuring images of the destruction immediately after the KT event and predicted changes to the environment one year later. The students will be engaged by activities suited for various learning preferences, with new information processed with the use of visual sources (watching clips on the KT event) and kinaesthetic-based investigations (simulating an asteroid impact with flour and a tennis ball). They will enjoy researching information online and drawing posters of the KT event.

Learning Outcomes:
Cognitive:
Students will:-
1. Understand that geological events, such as meteorite impacts, have the ability to change the Earth's surface (e.g. causing craters).
2. Learn about evidence for the KT event, including 66 million year old crater and iridium deposits.
3. Comprehend how the KT event affected the Earth by creating massive fires, tsunamis and debris.
4. Recognise how dust from the KT event blocked out the sun and halted photosynthesis in plants - collapsing food webs and causing widespread extinctions.

Affective:
Students will:-
5. Be excited to simulate a meteorite impact.
6. Enjoy watching videos on the KT event.
7. Appreciate drawing posters depicting the effects of the KT event.
8. Enjoy researching information of the KT event online or in books.

Procedural/Skill:
Students will:-
9. Refine their observation skills in studying the effects of a simulated meteorite impact.
10. Advance their research skills in collecting information on the KT event from books or the internet.
11. Develop their drawing skills in creating posters depicting the destruction caused by the KT event.

Resources:
Activity Sheets, computer, projector, corn flour, chocolate powder, container, tennis ball, poster paper, dinosaur books and student computers.

Suggested YouTube clips:
1. 'How a Single Asteroid Wiped Dinosaurs Off This Planet'
https://www.youtube.com/watch?v=u_JZObDetfQ – (animation of meteorite impact 66 million years ago).
2. 'KT Asteroid Impact'
https://www.youtube.com/watch?v=_COcHHvte-0 - (animation of changes to the Earth following impact).
3. 'Asteroid attack 1 - an answer? - What Really Killed the Dinosaurs? – BBC'
https://www.youtube.com/watch?v=JqGphEaJvDE – (video on iridium in meteorites and the KT layer).

For related teachers' notes and activity sheets, please go to www.kronosauruskorner.com.

Procedure:
Engagement:
The teacher will ask students if they know the cause of craters on the moon (answer: meteorite impacts). The teacher will state the following: meteorites are objects that travel through space such as asteroids made of rock and comets made of rock and ice. Many meteorites have approach Earth, with most burning up in the atmosphere. Some large asteroids have collided with the Earth and created massive craters.
A student will be selected to simulate a meteorite impact in front of the class. The student (preferably an individual with good aim) will throw a tennis ball at high speed into a container filled with corn flour covered in a thin layer of chocolate powder. After removing the thrown ball from the container, the teacher will ask the students how large the simulated crater is compared to the ball. They will be asked how far corn flour was projected following the impact. The teacher will tell the students to imagine the impact of 10 km wide object (e.g. the same size as Mount Everest) into the Earth travelling at 15-20 kilometres per second. Teacher will state that this occurred on Earth 66 million years ago and created at crater 180 kilometres wide. The students will be asked what well-known animals went extinct 66 million years ago (answer: dinosaurs, pterosaurs, plesiosaurs etc.).

Lesson steps:

1. Animated clips of the KT event will be played (YouTube clips 1, 2 and 3) with the teacher asking where geologists found the crater from the KT event (answer: Mexico) and what is the name of the rare metal found in rocks dating 66 million years ago and meteorites (answer: iridium). The students will be asked to list the natural disasters that occurred following the KT event (answer: fires, tsunamis, flying debris and storms) and what would happen to food webs if the sun was blocked out by dust (answer: the death of producers and consumers).

2. The students will collect the Activity Sheets and poster paper. They will draw two posters showing what changes occurred on Earth at the time of the KT event and what changes occurred one year after the KT event. They will consider the effects on living and non-living things. The posters must have titles and all images must be labelled. The students will use school computers or library books to gain ideas and information on the KT event.

   Conclusion:

3. The students will be asked to turn off their computers or close their books and hand in their posters (or hand them in tomorrow for homework if they have not finished). Several students will be asked to show their posters to the class or to give an interesting fact they learnt about meteorite impacts on Earth.

4. The teacher will recap the major points from today's lesson, including key messages about how meteorites can change the Earth's surface, create natural disasters and cause mass extinctions.

Homework:
Students who have not handed in their posters will complete them for homework.

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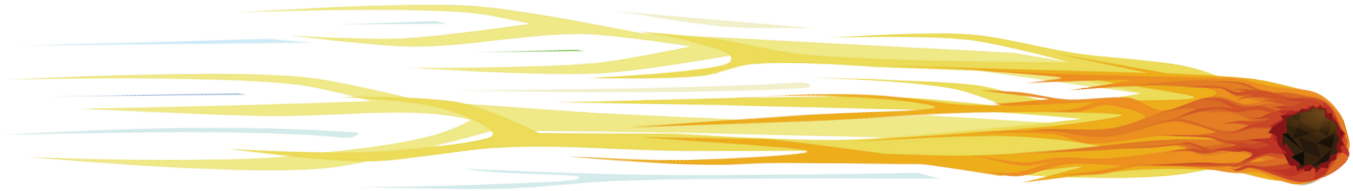
Year 6 Activity Sheet



The KT event occurred 66 million years ago when a large meteorite from space crashed into Earth. The impact created a large explosion and started fires, tsunamis and storms that quickly spread around the world. Dust that was thrust into the atmosphere blocked out the sun and killed plants. Many plant eating animals had nothing to eat and died, leaving meat eating animals with nothing to eat. Over many years, the lack of food and constant cold temperatures caused many living things to become extinct.

Animals that became extinct included dinosaurs, pterosaurs, plesiosaurs, mosasaurs and ammonites. Some of the animals that survived the KT event included crocodiles, lizards, turtles, fish, birds, small mammals and insects.

Your task is to research information in books or on the internet about the KT event. Based on your research, you must create two posters showing:

1. Changes that occurred to the Earth at the time of the KT event.
2. Changes that occurred to the Earth one year after the KT event.

You must consider the effects of the impact on living and non-living things. Both posters must have titles and drawings must have labels. Good luck!

Dust clouds blocking out the sun

Crater from KT event

Dead plants

Dead dinosaur

Dead pterosaur