

Rationale:

The students will learn that the transfer of energy between organisms from the Eromanga Sea can be viewed as food chains and webs. Based on fossils evidence of feeding relationships at Kronosaurus Korner, students will use food chains to depict feeding relationships between producers and various levels of consumers. They will also develop and interpret a larger food web featuring the organisms from the Eromanga Sea. Organisms will be classified based on their positions in food chains and webs. The students will research, develop and interpret diagrams, including food chains and webs. They will also refer to evidence when presenting conclusions.

The students will be engaged by activities suited for various learning preferences, with new information processed with the use of visual stimuli (observing fossils and displays) and auditory stimuli (discussing tasks within groups). They will enjoy sketching ancient animals that occupied different roles within food chains and webs in the Eromanga Sea

Learning Outcomes:

Cognitive:

Students will:-

1. Learn that food chains and webs depict the transfer of energy from producers to consumers in an ecosystem.
2. Understand that food chains and webs can depict the feeding relationships of organisms from the Eromanga Sea.
3. Comprehend that organisms can be classified based on their position in food chains and webs.
4. Recognise that evidence for feeding relationships can be found in fossils.

Affective:

Students will:-

5. Enjoy exploring the dynamic feeding-relationships of ancient creatures.
6. Appreciate studying fossils and displays.
7. Be excited to be on an excursion outside of the classroom.
8. Enjoy drawing food webs and chains from the Eromanga Sea.

Procedural/Skill:

Students will:-

9. Improve their observational skills through studying fossils and displays.
10. Refine their communication skills through discussions with the teacher and fellow students.
11. Advance their drawing skills through sketching diagrams of food chains and webs.

Resources:

Activity Sheets 1 and 2.

Note:

This lesson is intended to follow a guided tour of Kronosaurus Korner. Tours should highlight themes relating to the learning outcomes within these notes. Teachers wanting to run this lesson without a visit to Kronosaurus Korner can find information on creatures from the Eromanga Sea from:

www.kronosauruskorner.com

Clode, D. (2009). Prehistoric Life of Australia's Inland Sea. Melbourne: Museum Victoria Publishing.

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

Procedure:

Engagement:

Following a tour of Kronosaurus Korner, the class will gather around the bivalve display. The teacher will explain that energy is transferred in ecosystems when producers are eaten by consumers, which in turn are eaten by other consumers. Feeding relationships from the Eromanga Sea can be reconstructed based on fossil evidence including stomach contents and bite marks. Some ancient plankton were producers - creating their own energy from sunlight. This plankton was eaten by creatures classified as first order consumers like the clam *Inoceramus*. The teacher will ask the students what types of creatures ate first order consumers (answer: second order consumers). The teacher will show the students the fossils of a second order consumer - a protostegid turtle containing *Inoceramus* stomach contents.

Lesson steps:

1. The teacher will explain that a series of feeding relationships can be viewed as a food chain, with arrows drawn between animals to represent the transfer of energy when producers are eaten by first order consumers and so on. The teacher will show the students an example of a food chain on Activity Sheet 2 (this food chain is part of a larger food web which they will complete later).
2. The students will start Task 1 on Activity Sheet 1 by drawing their own food chains. They will complete this activity and Tasks 2-3 by studying fossils on display at Kronosaurus Korner. The teacher and Kronosaurus Korner staff will be present in the galleries to provide assistance.
3. Following the completion of Activity Sheet 1, the teacher will ask the class to name a marine animal that eats different types of food. They will also ask for examples of different marine animals in the same ecosystem that eat the same source of food. The teacher will state that the relationships in these examples can be drawn together as a food web (these examples could be drawn on paper in real time by the teacher). The teacher will explain that food webs consist of multiple food chains connected together.
4. The students will be given Activity Sheet 2 and asked to start Task 4. Based on evidence from fossils on display at Kronosaurus Korner, the students will draw other feeding relationships around the depicted food chain to create a larger food web. Individuals should complete this task while walking through Kronosaurus Korner, with the teacher and relevant staff present to provide assistance.

Conclusion:

5. The students will be asked to hand in their work if they're finished. They will be asked how many arrows they drew in their food webs and what roles were most important. The teacher will recap the major points from today's lesson, including key messages on how food chains and webs function within ecosystems.

Homework:

Students who haven't completed Activity Sheets 1 and 2 can finish any remaining tasks for homework based on information at www.kronosauruskorner.com.

Name: _____

Task 1. Draw a food chain using these organisms from the Eromanga Sea:

- the ichthyosaur *Platypterygius*
- plankton
- a protostegid turtle
- the clam *Inoceramus*

Include arrows, the names of the organisms and their classifications as either producers or consumers (e.g. first order consumers).

Task 2. What evidence is there for the ichthyosaur *Platypterygius* eating protostegid turtles?

Task 3. Describe what would happen to the animals in the food chain if plankton from the Eromanga Sea died.

Name: _____

Task 4. Below is a food chain from the Eromanga Sea which is part of a larger food web. Complete the food web by adding other feeding relationships from the ecosystem, including arrows between organisms to represent the transfer of energy. Write the name of each organism and its classification.

