



Title: Metamorphosis

Grade(s): 4th grade

Subject(s): Science

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Overview: The class will discuss examples of complete and incomplete metamorphosis. Student groups will categorize types of development and, according to RAFT guidelines, will make a product showing one type of complete metamorphosis.

Content Standards:

SC(4) 5.2 Describing life cycles of various animals to include complete and incomplete metamorphosis.

TC (3-5) 2 Use various technology applications, including word processing and multimedia software.

TC (3-5) 12 Create a product using digital tools.

NSES Develop understanding of life cycles.

Local/National Standards: Standard C

Primary Learning Objectives: Students will create a project describing the stages of complete metamorphosis.

Additional Learning Objectives: Students will demonstrate characteristics of a skillful listener and presenter using web-based presentation software.

Approximate Duration of Lesson: 3-4 days; 45 minutes per day

Materials and Equipment:

For Step 1: Notices sent home requesting baby pictures of students. All students must have baby pictures.

For Step 2: Example of development of a flea (or other complete metamorphosis). Student copies of Venn diagram outline.

For Step 3: Pictures, posters, video, and/or presentations showing incomplete and complete metamorphosis.

For Step 4: Examples (one-sheet each) of complete and incomplete metamorphosis for damselfly, bird, fish, grasshopper, ant, European eel, lacewing, and silverfish.

For Step 5: Links to websites (included).

Technology Resources Needed: Computers, Internet connection, Microsoft PowerPoint (optional)

Background/Preparation: Students should have a basic understanding of animal life cycles, a basic knowledge of computer use and how to use Prezi and/or Scratch and/or PowerPoint and/or Xtranormal and/or Comic Strip Maker.

Procedures/Activities:

Step 1 Engage: Teacher asks the essential question as students look at baby pictures: How has your body changed and remained the same from infancy? Students give brief responses.

Step 2 Explore: Teacher shows the development of a flea (using overhead transparencies, poster, or videos, etc.) being careful to briefly describe the sequence and NOT to define complete or incomplete

metamorphosis. Student groups compare and contrast the development of a flea with their own development using a Venn diagram.

Step 3 Explain: Groups share their Venn diagrams with the class. Teacher integrates this into a discussion of the differences and similarities of complete and incomplete metamorphosis. Teacher elaborates on the differences between complete and incomplete metamorphosis with various examples (overhead transparencies, poster, text, videos, etc.). In all, human development (ref. baby pictures) describes incomplete metamorphosis while the development of a flea shows complete metamorphosis.

Step 4 Elaboration: Student groups are given one of several examples of animal development to categorize as either complete or incomplete metamorphosis. Groups share and explain their findings.

Step 5 Evaluation: Student groups will create a product showing one type of complete metamorphosis. Groups will be given the following options for their product, based on RAFT-differentiated project guidelines:

- Role—choice of writer, artist, scientist, or reporter
- Audience—choice of peer group, self, judge, or parents
- Format—choice from 5 technology formats: Prezi, Scratch, Xtranormal, Comic Strip Maker, PowerPoint.
- Topic—Students answer the question, *What is complete metamorphosis?* Groups focus on one animal: butterfly, frog, salamander, flies, or bee.

Attachments:

Links to websites:

www.prezi.com

<http://scratch.mit.edu>

www.xtranormal.com

<http://learnenglishkids.britishcouncil.org/en/make-your-own>

Assessment Strategies:

Students and/or teacher assess using scoring rubric.

Extension:

Students present their creations to the class. Students may blog feedback (e.g. on Wallwisher, Edublogs, Glogster, etc.).

Remediation:

Extra time to complete activities/project, on-level science reading, peer tutoring,

Rubric: Metamorphosis

Criteria	Yes-3	Somewhat-2	Very Little-1
The student appropriately used technology.			
The product correctly describes the complete metamorphosis of an animal.			
The RAFT guidelines were followed.			

Total (out of 9): _____