

EDUC 225/226 Section: 002

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Lesson # 2

I. Subject and Grade Level: 3rd Grade Science

II. Topic: Simple Machines: Levers

III. STANDARDS

A. Virginia Standard of Learning:

3.2: The student will investigate and understand simple machines and their uses. Key concepts include

- a) purpose and function of simple machines;
- b) types of simple machines;
- c) compound machines; and
- d) examples of simple and compound machines found in the school, home, and work environments

B. National Standard of Learning:

NS.K-4.2 PHYSICAL SCIENCE

As a result of the activities in grades K-4, all students should develop an understanding of:

- Properties of objects and materials
- Position and motion of objects
- Light, heat, electricity, and magnetism

IV. TCA (Teacher Candidate Assessment) Competencies:

A. TEACHING COMPETENCIES:

- 4. Assessment of and for student learning is evident in this lesson through my evaluation of their knowledge of levers during independent practice
- 5. Throughout my lesson I will maintain an adequate learning environment by calling students by name, answering any questions they have, and making them raise their hand to speak so that everyone can speak without needing to shout.
- 6. I will conduct myself professionally and wear professional clothing.

B. CONTENT COMPETENCY:

Science B1 and B2: I understand the scientific concepts taught and have designed an hands on lesson to teach science.

V. Objective: Given a paper fulcrum, paper lever, paper load, and a brass fastener, students will assemble a model of a first, second, or third class lever, label it as such, and label its fulcrum, force, and load getting 4/4 correct.

VI. Materials: Paper, brass fastener, pen or pencil, ruler, heavy object (i.e. textbook).

VII. Technology Connection: PPT

VIII. Character Education Principle: N/A

IX. Pre Assessment: Review previous simple machines, and introduce the new one by showing a picture and asking what simple machine it is.

X. Procedures:

A. Set:

Have students take out a large textbook or some other heavy object and a ruler and set the textbook on the ruler with four inches of the ruler covered and eight inches uncovered. The textbook should be fully on the table or right on the edge. Instruct students to first lift the book without touching the ruler or opening the book. Then have the students reset the materials. Then have the students lift the book by pushing down on the ruler. Ask which was easier.

B. Developmental Activities:

1. Instruction:

- a. Define the terms “lever”, “fulcrum”, “load”, and “force”
 - i. Define the term “first class lever”, give examples, ask for examples
 - ii. Define the term “second class lever”, give examples, ask for examples
 - iii. Define the term “third class lever”, give examples, ask for examples
- b. Review the term by displaying pictures of levers to the class and asking them as a group to classify each lever, then ask individuals to tell where the fulcrum, load, and force are.

2. Guided Practice:

Students will get up from their seats, find a lever, and stand next to it until everyone has found a lever. Depending on the number of levers in the room, students can be grouped into groups of two or three. Once each student or group has found a lever, they are to classify it and indicate its fulcrum, force, and load.

3. Independent Practice:

Students will be given pre-cut paper fulcrums, levers, and loads and a brass pin. With these materials, students are to either build a first, second, or third class lever. After building the lever, students are to label its parts (fulcrum, force, load). After construction is complete, we will grade the project as a class.

C. Closure:

Encourage students to be actively thinking while they’re working on other subjects or doing other activities. Encourage them to actively think about if they’re using a lever and what kind of lever it might be.

XI. Diversity / Differentiation for Exceptionalities:

- a. **Learning Styles** (*modalities / multiple intelligences*) – Teaching from a powerpoint provides visual learners with pictures, and my speaking provides auditory listeners with audible instruction. Throughout the lesson, students are told to get up to find levers and will make their own levers which provides the movement needed for kinesthetic learners. Most of the lesson is intrapersonal as students work on their own to find and create levers, but while students are finding levers they will interact with each other and they may be allowed to work together to find levers.
 - **Gifted** – Gifted students could be asked to create two types of levers or all three types of levers.
 - **LEP** - As a science lesson, it is difficult to provide for LEP students. However, since the levers are depicted in pictures, LEP students should be able to understand well enough with help.
 - **LD, ED, ADD** – The lesson provides enough movement to engage ADD and ADHD students. LD students can be given extra help in classifying levers if needed.
 - **Multicultural Connections** – N/K

- B. Evaluation:** As students construct their levers, I will walk around the room assessing their progress. After students construct their levers, I will draw each type of lever as an example and have students grade their own work before turning it in.

**Reflection – use attachment from Blackboard.*