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Exploring Energy, Motion and Forces with Interactive Physics

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Interactive Physics Lesson Plan #4

Name: April McGivern

Grade level(s)/Subject taught: grade 7, grade 8, grade 9 Living Environment

Objectives:

Intermediate Level Science Curriculum

Key Idea 5: Energy and matter interact through forces that result in changes in motion.

5.2f Machines can change the direction or amount of force, or the distance or speed of force required to do work.

5.2g Simple Machines include a lever, a pulley, a wheel and axle, and an inclined plane. A complex machine uses a combination of interacting machines. e.g., bicycle

Students will use the Interactive Physics program to create a simple machine.

Students will create a lever and a ball that will fall onto it and changed the direction of the force.

*This lesson will encompass approximately 3 class days.

Materials: computer, Interactive Physics program, projector and screen (or other tool that can project lesson onto screen/monitor for students to see)

Prompts:

1. How will you assess the prior knowledge of the student?
 2. How will you begin the lesson?
 3. What are the teacher and students doing every 5-10 minutes? (Teacher Actions and Student Actions)
 4. How will you assess the learning for the lesson?
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1. Upon entering the classroom students will be handed a half sheet of paper. They will write their name on the top of the paper. Next students will be asked write one question about simple machines and the answer. Students will fold the paper in half and the teacher will collect them in a fish bowl.
 2. The teacher will pull a question from the fish bowl and ask a student with their hand raised for the answer. The teacher will ask approximately 4-10 questions. Each student who answers a question will receive a "science buck". (Science bucks are tickets made with Word Publisher and stamped by the teacher. They are worth $\frac{1}{4}$ of a point on the students report card grade. Students collect them throughout each marking period and turn them in at the close of the marking period so they may be added to their report card grade.)
 3. Every 5-10 minutes the teacher and students will be completing the steps necessary to complete the Interactive Physics model of a lever. The teacher will circulate and check on student work and progress. (Students will work in pairs.) The teacher will be directing and modeling each step for the students to follow (group instruction).
 4. A rubric covering the lesson will be used.

	0	1	2	3	4
Creation of model	There is no work on the page.	There is some work on the page but no working model.	A model is present on the page, not all parts function.	A model is on the page, half to three fourths of the work is complete.	All parts of model are present and working.
Timeliness	Work handed in four or more days late.	Work handed in three days late.	Work handed in two days late.	Work handed in one day late.	Work handed in on time.
Parts of model	No buttons are present.	One correct button is present.	Two correct buttons are present.	Three correct buttons are present.	A button for stop, start, and reset are present. A timer button is present as well.

