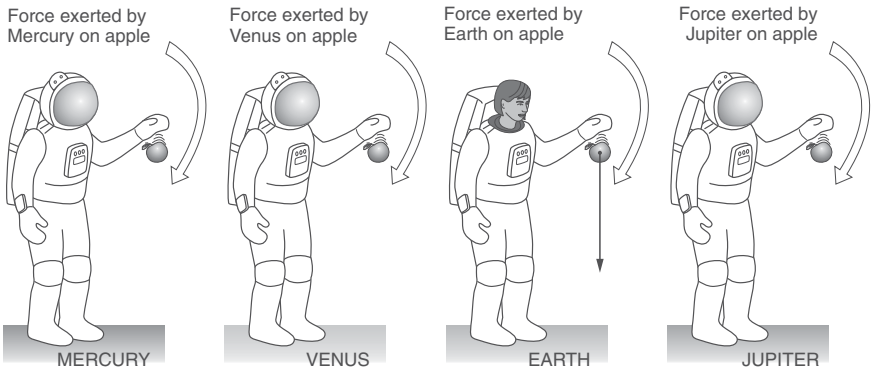
PRACTICE

Activity 4: Weight

Name Date Class

1. In the diagram below, astronauts on different planets are dropping apples.

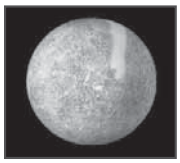
a) Draw and label force arrows to show the force exerted by each planet on its apple. Pay attention to the *lengths* of your force arrows! One is done for you.

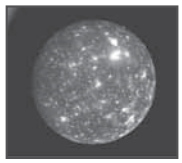


The planets appear in order of their gravitational pull. Mercury is the least massive planet and has the weakest gravitational pull. Jupiter is the most massive and has the strongest gravitational pull. Mercury's gravity = $\frac{4}{10}$ of Earth's gravity. Venus' gravity = $\frac{9}{10}$ of Earth's gravity, and Jupiter's gravity = $2\frac{1}{2}$ times Earth's gravity.

b) On which planet would the apple weigh the most? _____

2. Mercury, a planet in our Solar System, and Callisto, a moon of the planet Jupiter, have about the same volume. However, Mercury's mass is about 3 times greater than Callisto's mass. Why could a future astronaut (perhaps you!) jump higher on Callisto than on Mercury? *Use gravitational interaction ideas to answer this question. Write at least three complete sentences.*


Mercury


Callisto

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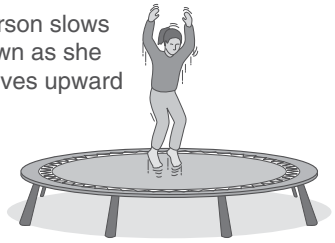
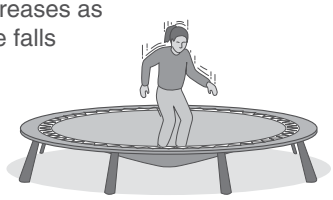
3. Complete the table.

	Person slows down as she moves upward 	Person's speed increases as she falls 
Other than drag, does an interaction affect the person's motion?		
If so, what kind of interaction(s) affect the person's motion?		
If so, what are the interacting objects?		
Is a force (or forces) being exerted on the person? If so, what is your evidence?		
On the pictures in the top row, label force arrows to represent any forces on the person.	Label force arrows on diagram.	Label force arrows on diagram.

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