Learning Target: I will be able to describe and explain how gravitational fields exist between objects exerting forces on each other even when the objects are not in contact with each other.

Gravitational Fields & Gravitational Force Video Notes

1. Gravity is the force that ________ objects toward each other. It's the reason why things ____________ instead of floating away! ___________________ first described gravity when he saw an apple fall from a tree. He realized that the same force pulling the apple to the ground also keeps the Moon in __________ around the Earth!

2. But here's the cool part—gravity doesn't need objects to be _______________ to work! For example, Imagine you're standing near a campfire. You don't have to __________ the fire to feel its heat, right? That's because heat _________________ around the fire.

3. Gravity works in a similar way! Every object with mass creates an invisible ________________________ field around it, which extends in all directions. The ___________ the object, the ______________ its gravitational field! Earth has a much ____________u gravitational field than a _________ rock, and that's why everything _______ toward Earth instead of _____________ into space!

Quick checks for understanding!

1. What is gravity? ____

____

2. Why does gravity work even when objects are not touching each other? ________________________

____

3. What is the relationship between the size of objects and their gravitational field? _________________

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Created By: Chivas & Jordan Spivey **Duplication of any part of this activity is prohibited by law**

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4. Here's something mind-blowing—gravity isn't just something Earth does to us. We also _______ on Earth! That's right, every object with _________ pulls on every other object, even if they aren't ___ _____________!

5. For example, the Moon is pulled toward Earth by __________, but the Moon also pulls on _________! That's what causes ocean tides! The strength of gravity depends on two things: ________________. The more _________ an object has the ______________ its gravitational pull.

6. The _______ mass an object has the ______________ its gravitational pull. Also, the more _________ there is between objects, the ____________ the gravitational pull is and vice versa.

7. That's why astronauts weigh ______ on the Moon! The Moon has less _____ than Earth, so its gravity is ____________! For example, the moon's gravity is only ____________ that of Earth because it's gravitational pull is only ___________ while the Earth's gravitational pull is ___________. Let's break it down even further. If you weigh ___________ on Earth you would only weigh about _____ pounds on the __________.

Quick checks for understanding!

1. Why does the Earth and Moon pull on each other? ____

____

2. What are there two factors that the strength of gravity depends on? ________________________

____

3. Why would you weigh less on the Moon than you would on Earth? __________________________

____

4. If you weigh 180 pounds on Earth, approximately how much would you weigh on the Moon? _______

____

Quick Checks for Understanding!

1. Which planet would you weigh the most on? Explain why. ________________________________

____

2. Which planet (not including the moon) would you weigh the least on? Explain why. _____________

____

3. Why does the moon orbit or move around the Earth instead of the Earth orbiting the moon? _______

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