FLORIDA STATE UNIVERSITY

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Pep Talk

Thanks for taking part in our summer camp! We are now going to ask you 28 more questions about physics, kind of like the ones we asked you at the start of camp. We'll also ask you what you thought about the game. This is the most important part of the camp, because this is how we figure out if our game works at helping you learn physics in a fun way. Please try your best! And remember: there are prizes for the people who improve the most and score the highest on these questions!

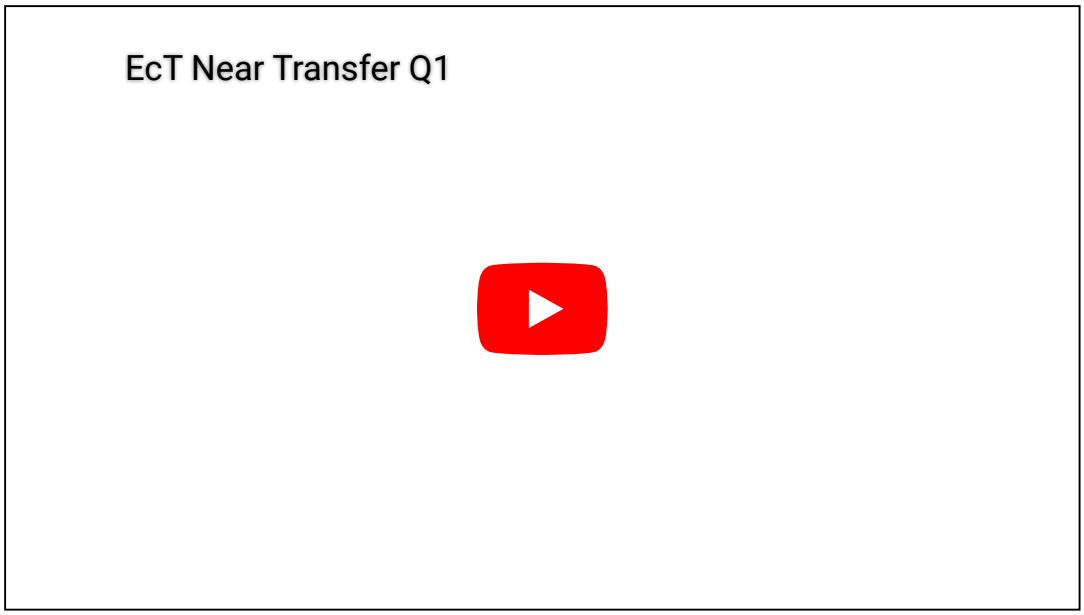
IMI abridged and random

Before we get to the physics questions, we want to know how you felt about the game. For each statement below, indicate how true that statement feels.

	Not at all true			Somewhat true			Very true
I didn't try very hard to do well in the game.	○	○	○	○	○	○	○
I felt very frustrated while playing the game.	○	○	○	○	○	○	○
The game was fun to play.	○	○	○	○	○	○	○
I was very relaxed while	○	○	○	○	○	○	○

	Not at all true			Somewhat true			Very true
playing the game.							
The game did not hold my attention at all.	○	○	○	○	○	○	○
I would be willing to play the game again because it has some value to me.	○	○	○	○	○	○	○
I think I did pretty well in the game compared to other students.	○	○	○	○	○	○	○
I enjoyed playing the game very much	○	○	○	○	○	○	○
I believe playing the game could be beneficial to me.	○	○	○	○	○	○	○
I would describe the game as very interesting.	○	○	○	○	○	○	○
I thought the game was boring	○	○	○	○	○	○	○
I tried very hard in the game.	○	○	○	○	○	○	○
I couldn't play the game very well.	○	○	○	○	○	○	○
I think I am pretty good at the game.	○	○	○	○	○	○	○
I didn't put much energy into the game.	○	○	○	○	○	○	○
I did not feel frustrated at all while playing the game.	○	○	○	○	○	○	○
I am satisfied with my performance in the game.	○	○	○	○	○	○	○
I put a lot of effort into the game.	○	○	○	○	○	○	○

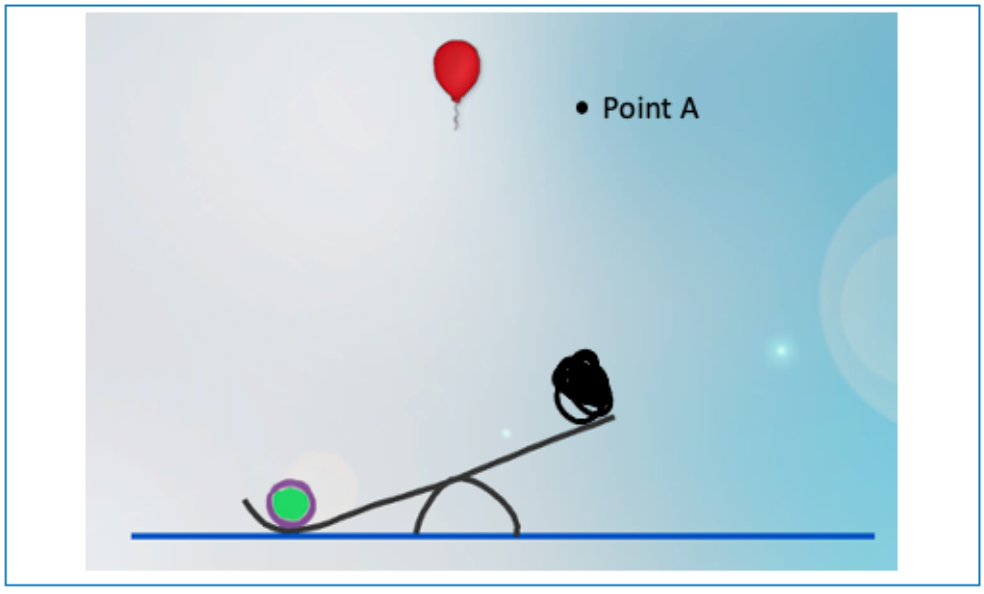
Near Q1 EcT Lever 1



In this video, a ball is drawn at Point A. What would you change to make the green ball hit the balloon?

- ◯ Draw an object with a larger mass
- ◯ Draw an object with a smaller mass
- ◯ Draw the object closer to the center of the lever
- ◯ None of the above would help

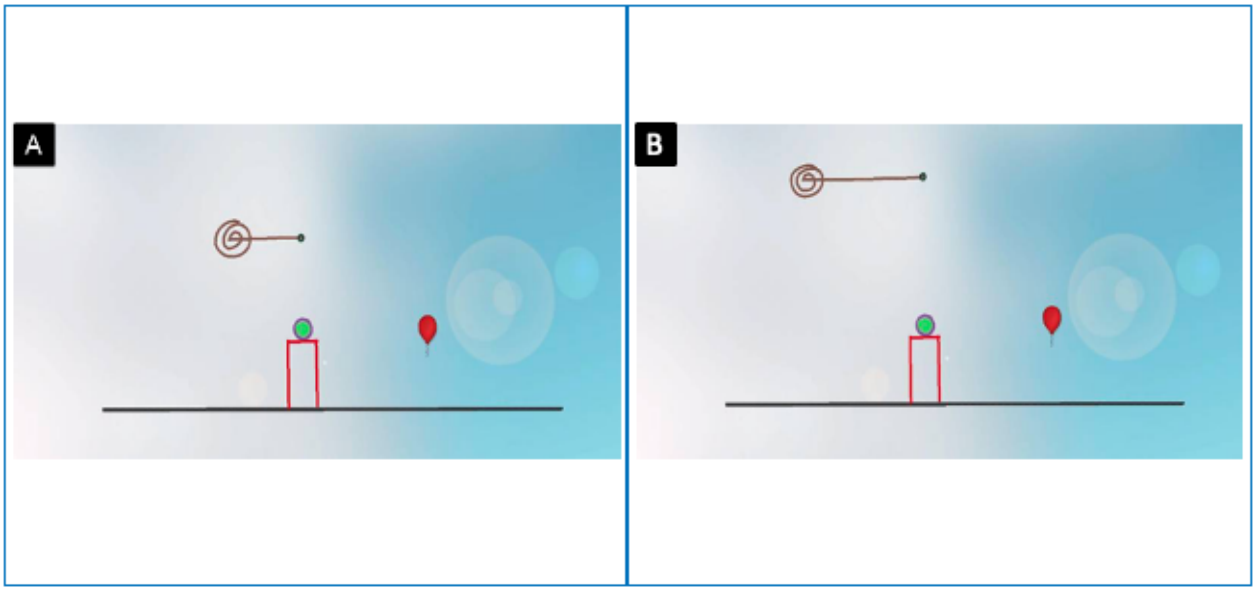
Near Q2 EcT-Lever 2



An object is drawn resting on the right-hand side of the lever. It's just heavy enough to lift the ball up. If the object is dropped from Point A, how much energy will it transfer to the ball?

- ◯ The same as before
- ◯ More than before
- ◯ Less than before
- ◯ Not enough information

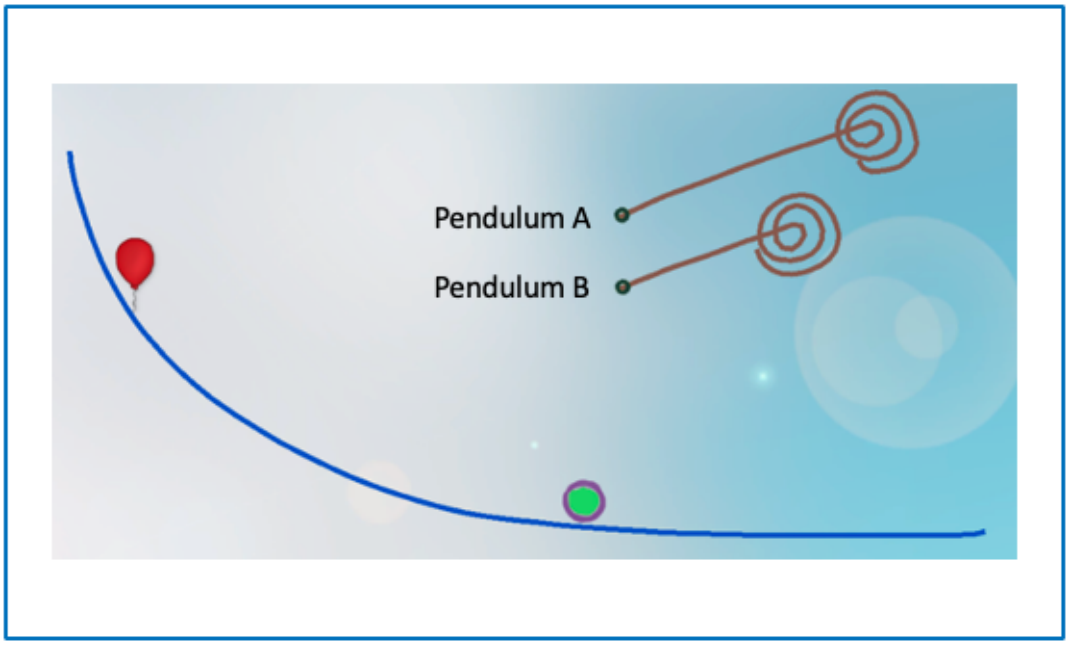
Near Q3 EcT-Pendulum 1



Both pendulums will hit the green ball. Which pendulum would you choose to solve this level?

- ◯ A
- ◯ B
- ◯ No difference
- ◯ Not enough information

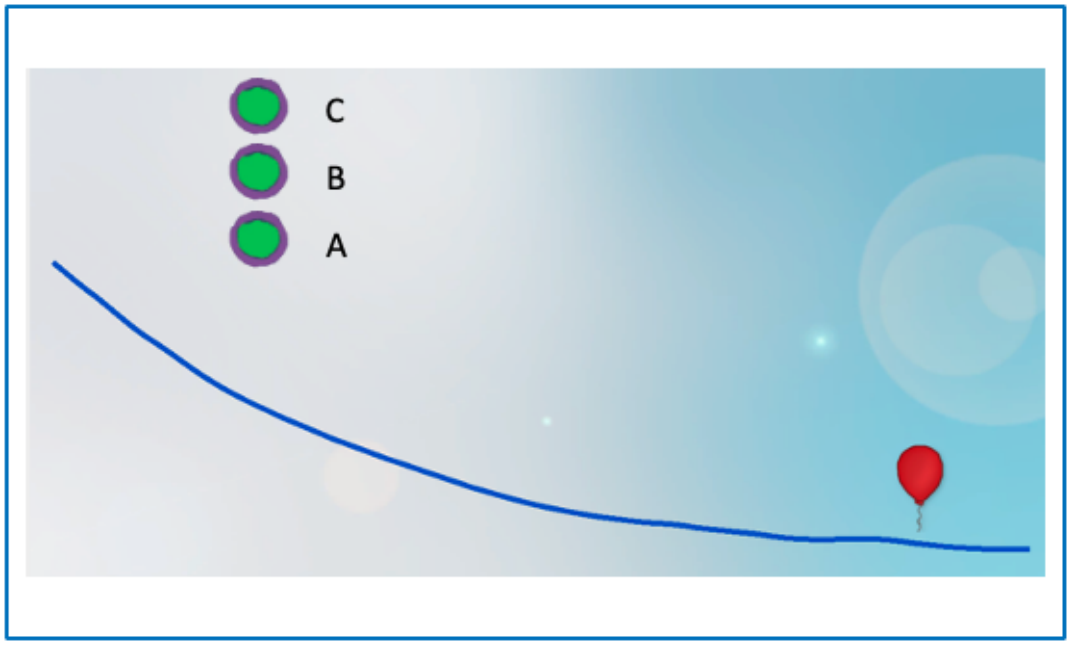
Near Q4 EcT-Pendulum 2



Both pendulums will hit the ball. Which pendulum is *more likely* to get the ball to the balloon?

- ○ A
- ○ B
- ○ Both
- ○ Neither of them

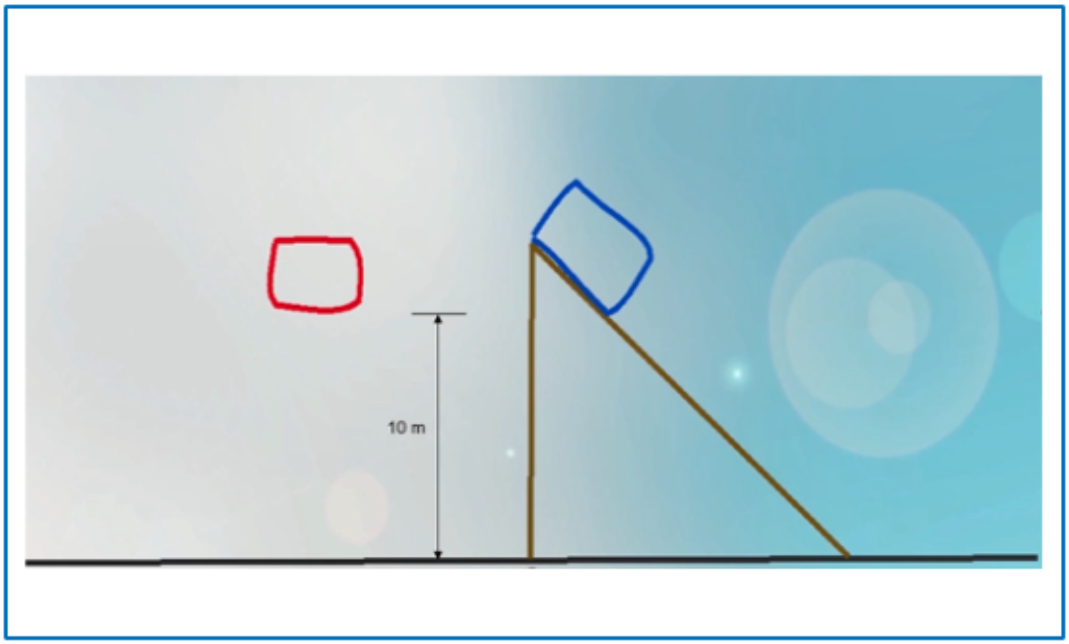
Near Q5 EcT-Ramp 1



A ball is dropped from each point shown above (A, B, C). When will the ball have the *fastest speed* as it hits the balloon?

- ◯ Dropped from point A
- ◯ Dropped from point B
- ◯ Dropped from point C
- ◯ No difference

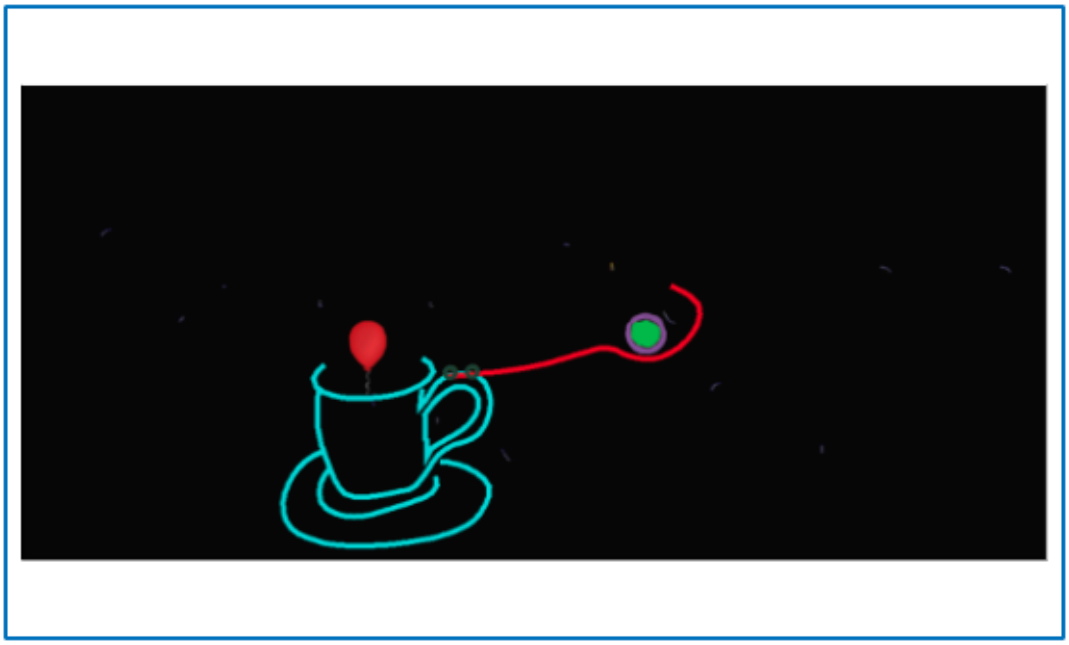
Near Q6 EcT- Ramp 2



The red and blue boxes start at the same height. Ignoring friction, which box is moving *faster* just before hitting the ground?

- ◯ The red box
- ◯ The blue box
- ◯ No difference
- ◯ Not enough information

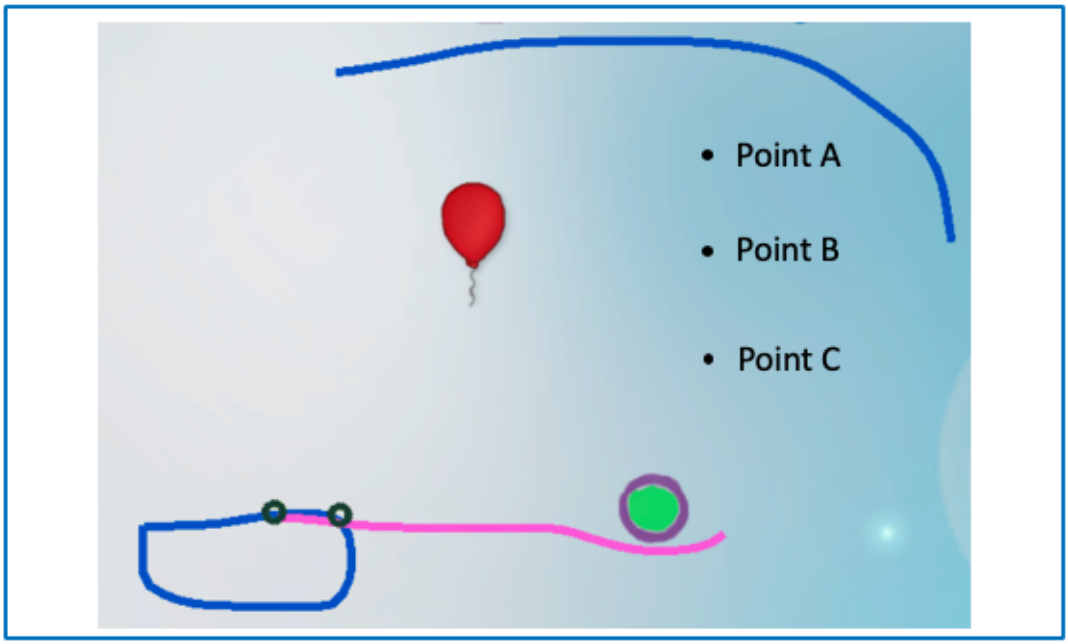
Near Q7 EcT-Springboard 1



Which method is *more likely* to make the ball hit the balloon?

- ◯ Attach a weight to the springboard
- ◯ Attach a weight to the springboard and then release
- ◯ Increase the mass of the ball
- ◯ None of the above

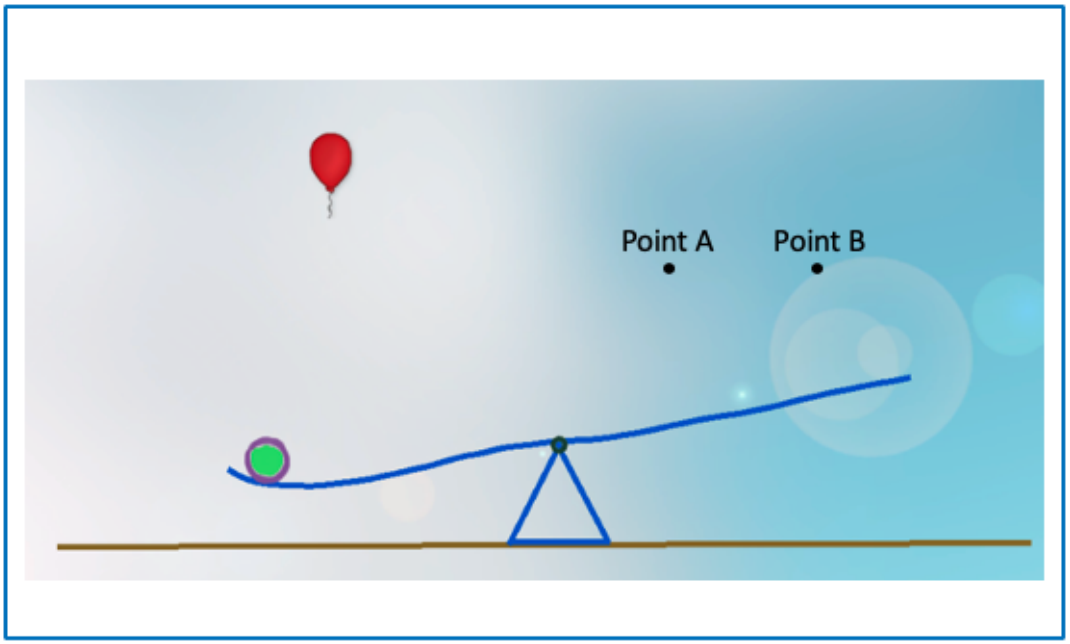
Near Q8 EcT-Springboard 2



If a mass is dropped from each point (A, B, C), what point will make the green ball hit the balloon with the *greatest energy*?

- A
- B
- C
- All points will have the same effect on the ball

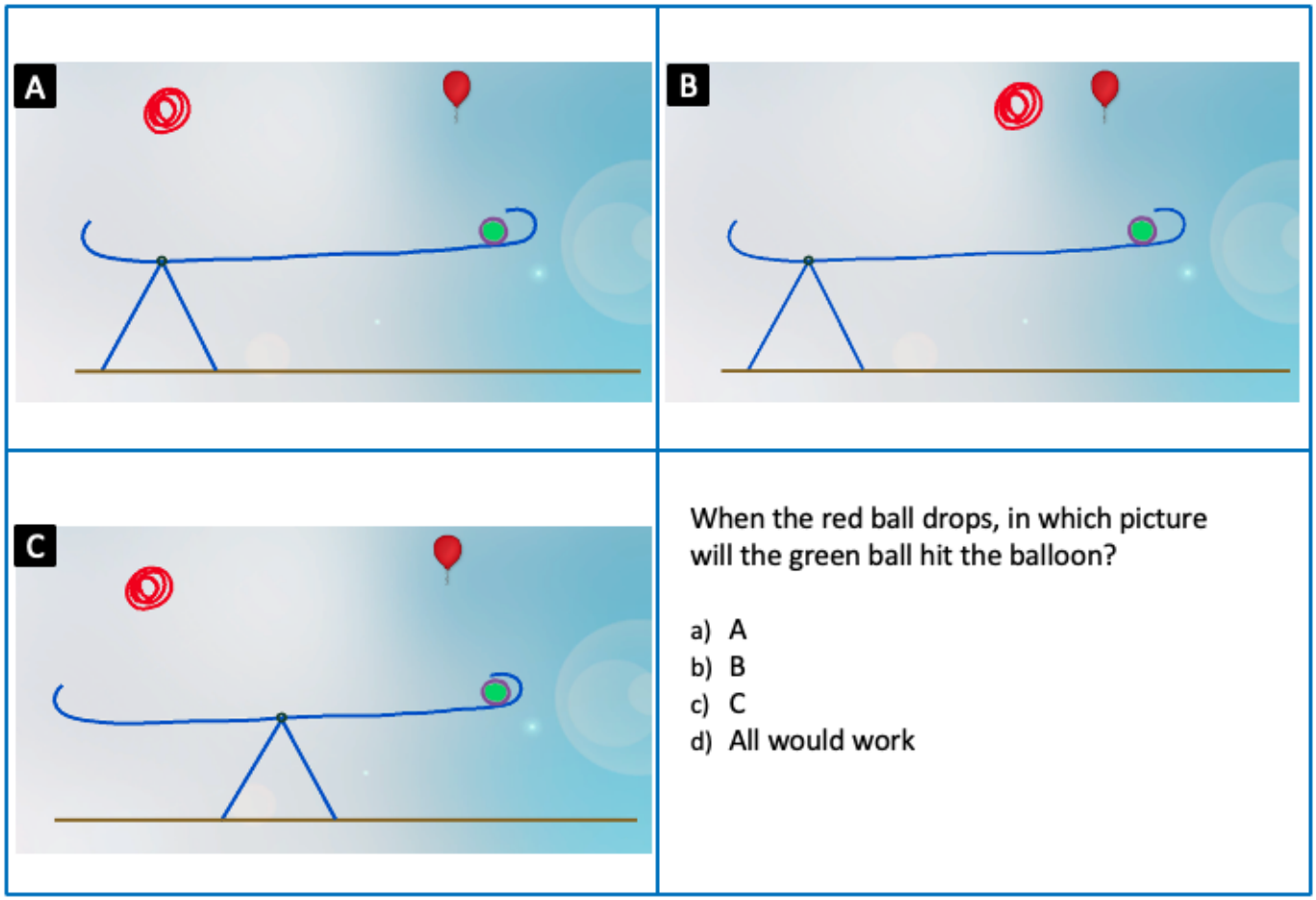
Near Q9 PoT Lever-Distance 1



Where should you drop a weight so the green ball is more likely to reach the balloon?

- A
- B
- No difference
- Not enough information

Near Q10 PoT-Lever-Distance 2



When the red ball drops, in which picture will the green ball hit the balloon?

- A
- B
- C
- All would work

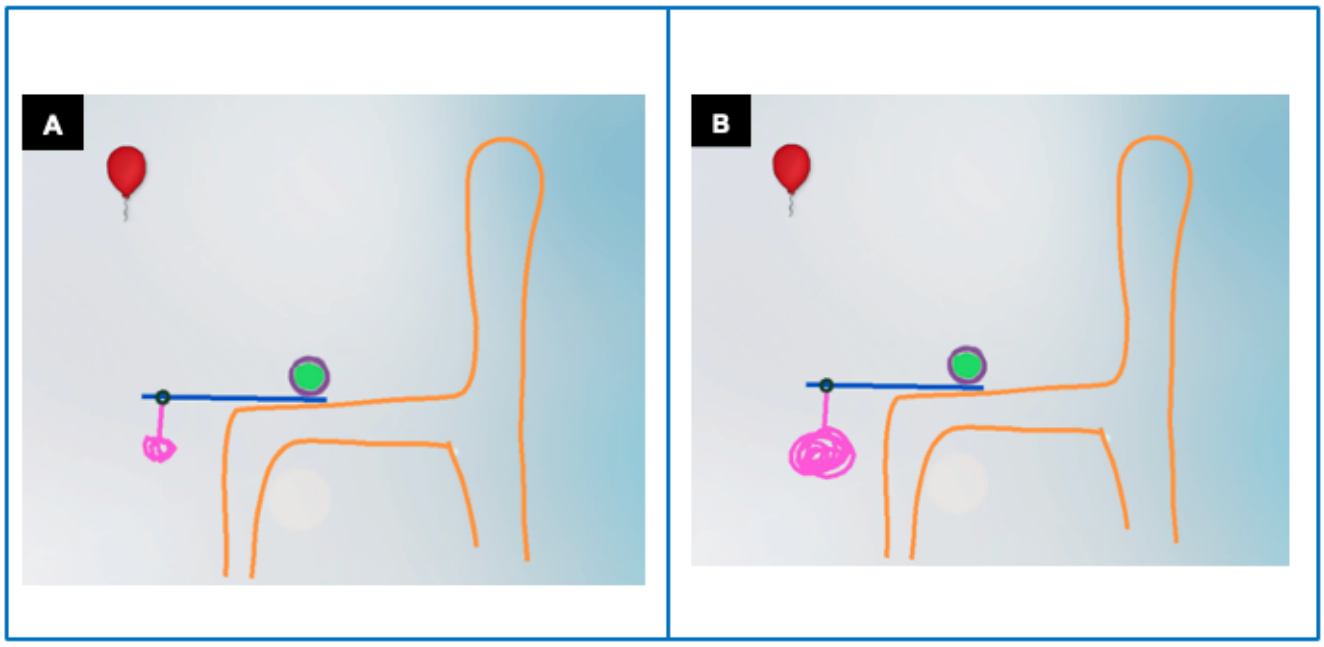
Near Q11 PoT-Lever-Mass 1

PoT Near Transfer Q11 formA

Watch the video. What would you change to get the ball to solve this level?

- ◯ Increase green ball's mass
- ◯ Decrease green ball's mass
- ◯ Make the blue stick shorter
- ◯ Make the blue stick longer

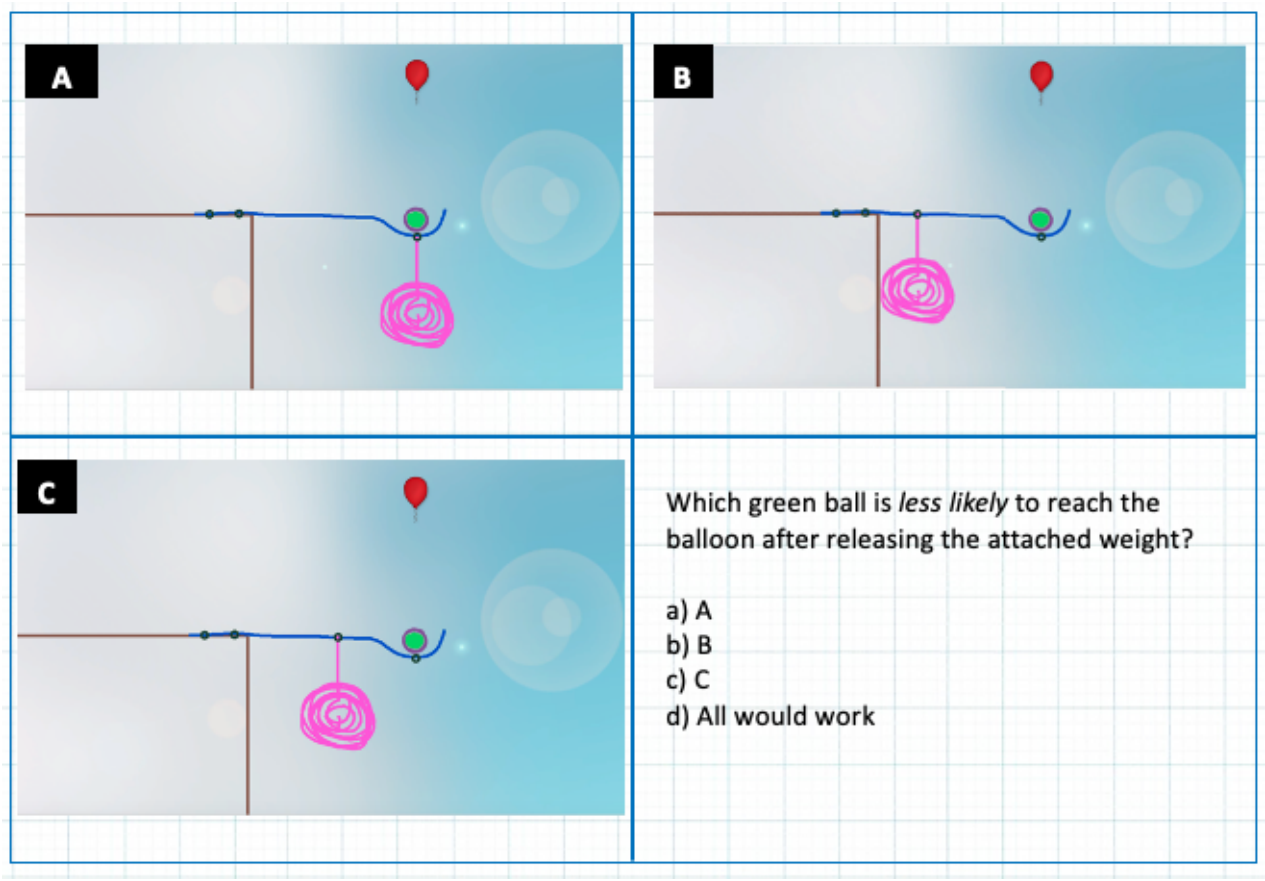
Near Q12 PoT-Lever-Mass 2



In which picture (A or B) will the green ball go higher?

- A
- B
- Both will reach the same height
- Not enough information

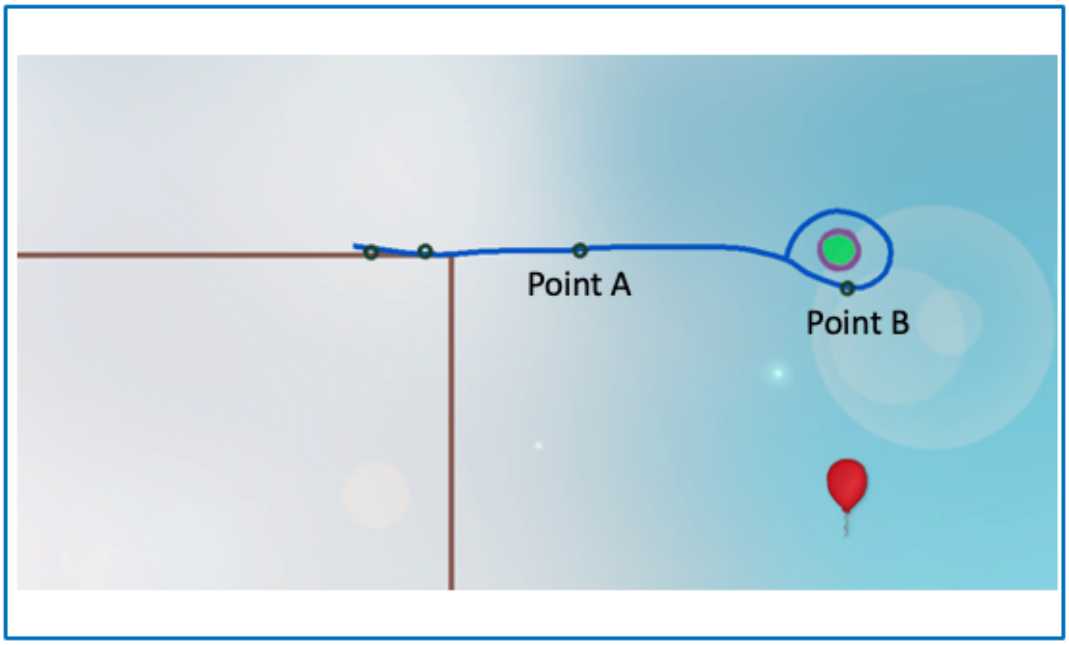
Near Q13 PoT-Springboard 1



Which green ball is *less likely* to reach the balloon after releasing the attached weight?

- A
- B
- C
- All would work

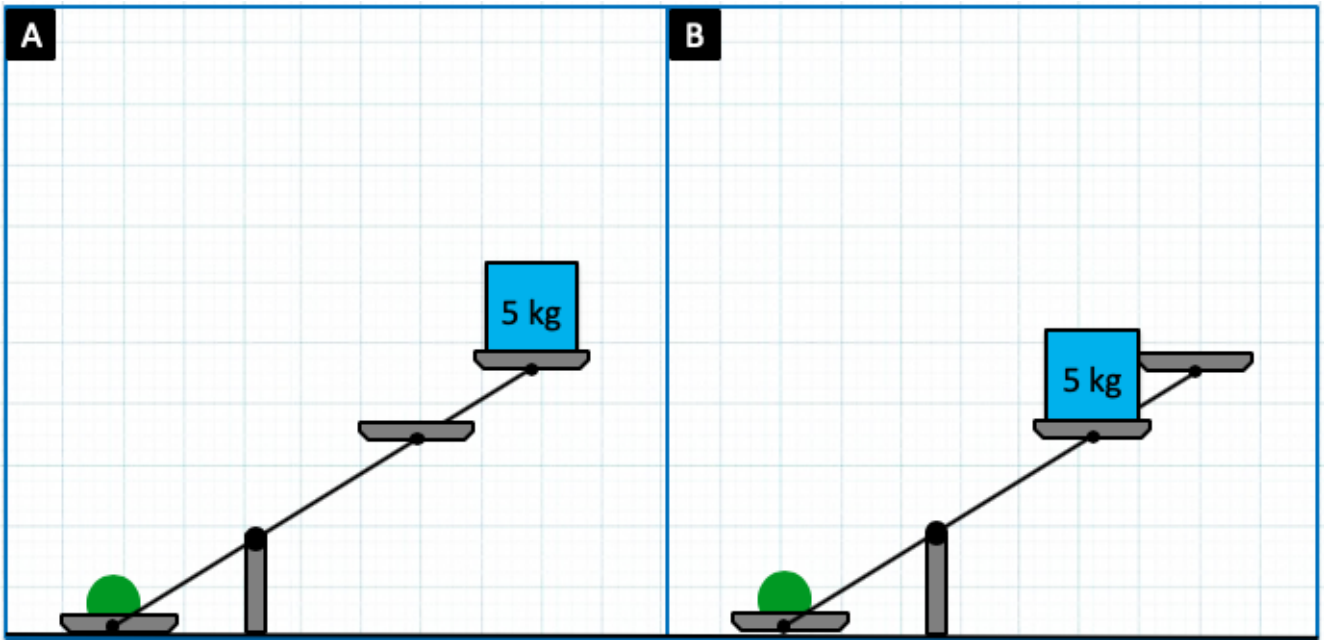
Near Q14 PoT-Springboard 2



Which one of the following solutions is *more likely* to make the ball reach the balloon?

- Attach a light weight on point B
- Attach a heavy weight on point B
- Attach a light weight on point A
- Attach a heavy weight on point A

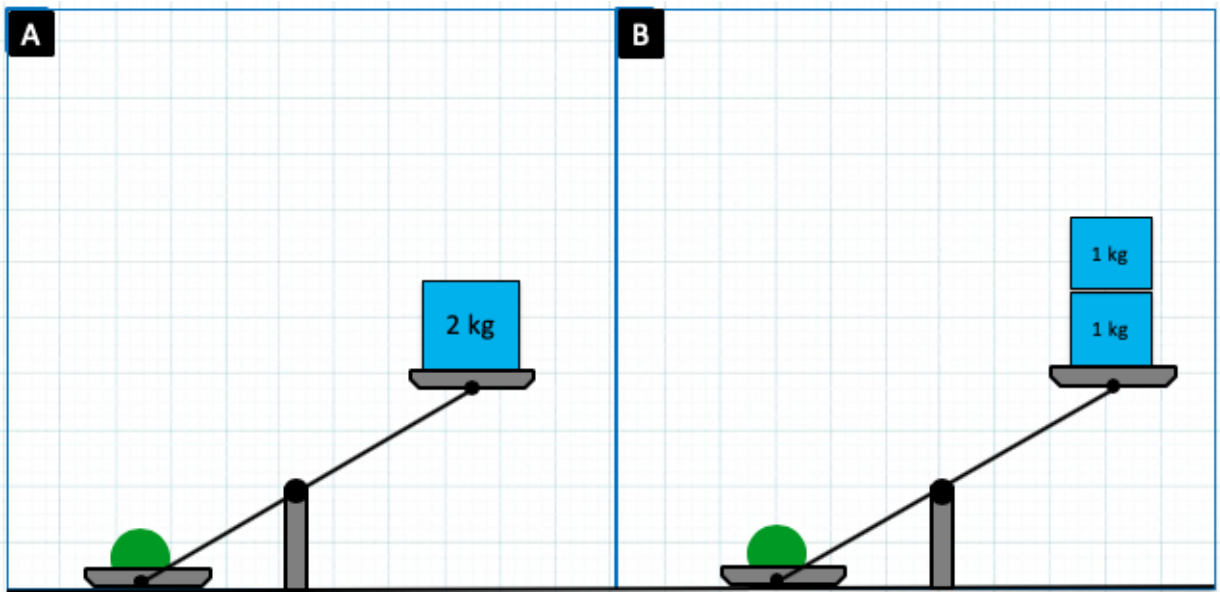
Far Q1 EcT-Lever 1



In Figures A and B, the two levers are identical. Which ball will be moving *faster* when it leaves the plate?

- ◯ The ball in picture A
- ◯ The ball in picture B
- ◯ The balls will move at the same speed
- ◯ More information is needed to answer the question

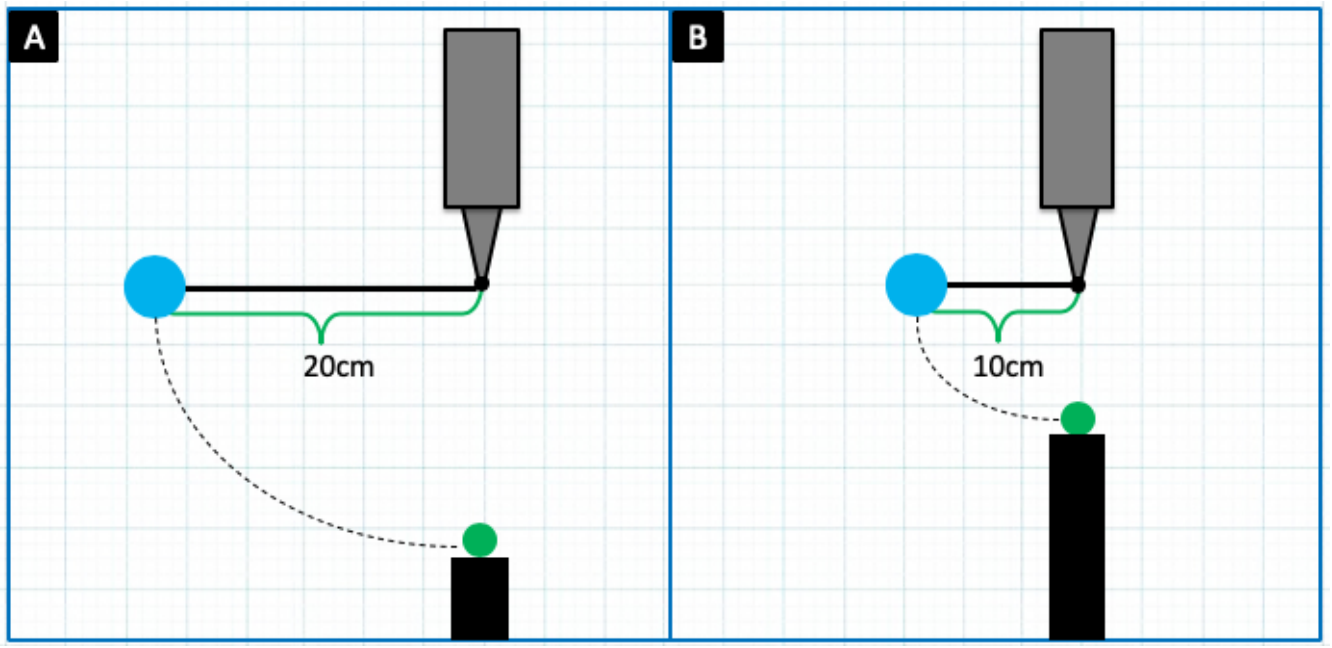
Far Q2 EcT-Lever 2



In Figures A and B, the two levers are identical. Objects are placed at the same location. Which ball will be launched *higher*?

- A will be launched higher than B
- B will be launched higher than A
- A and B will be launched the same height because both masses start at the same height
- More information is needed to answer the question

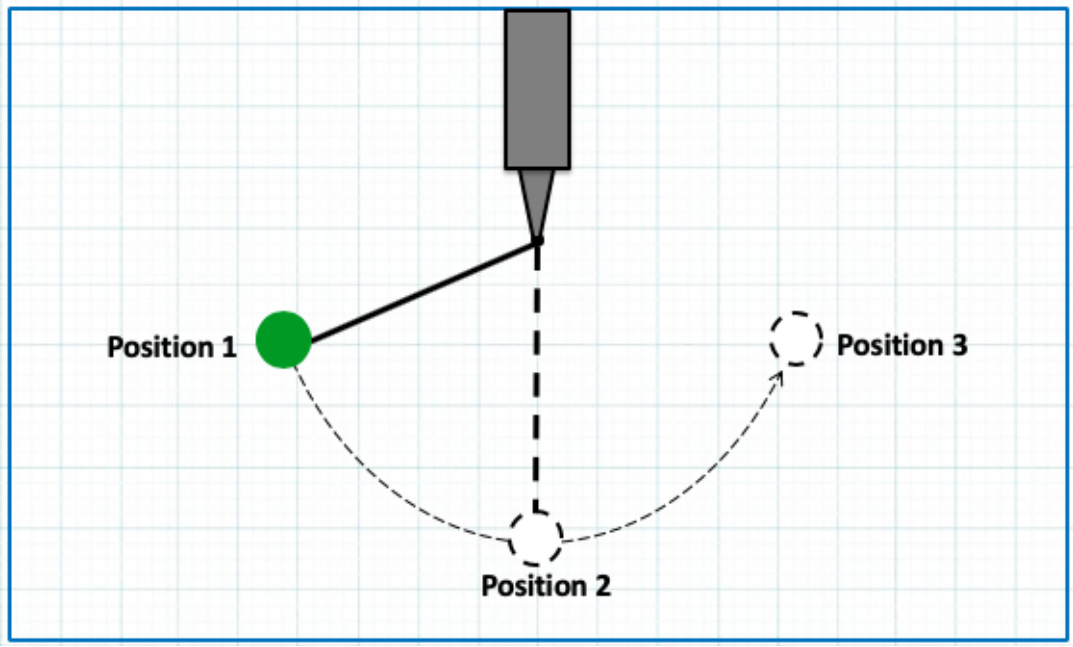
Far Q3 EcT-Pendulum 1



In Figures A and B, the pendulums have different lengths but the same mass. They are released at the same time. Which pendulum will travel faster *just before* it impacts the green ball?

- A and B will move at the same speed
- B will be faster than A
- A will be faster than B
- More information is needed to answer the question

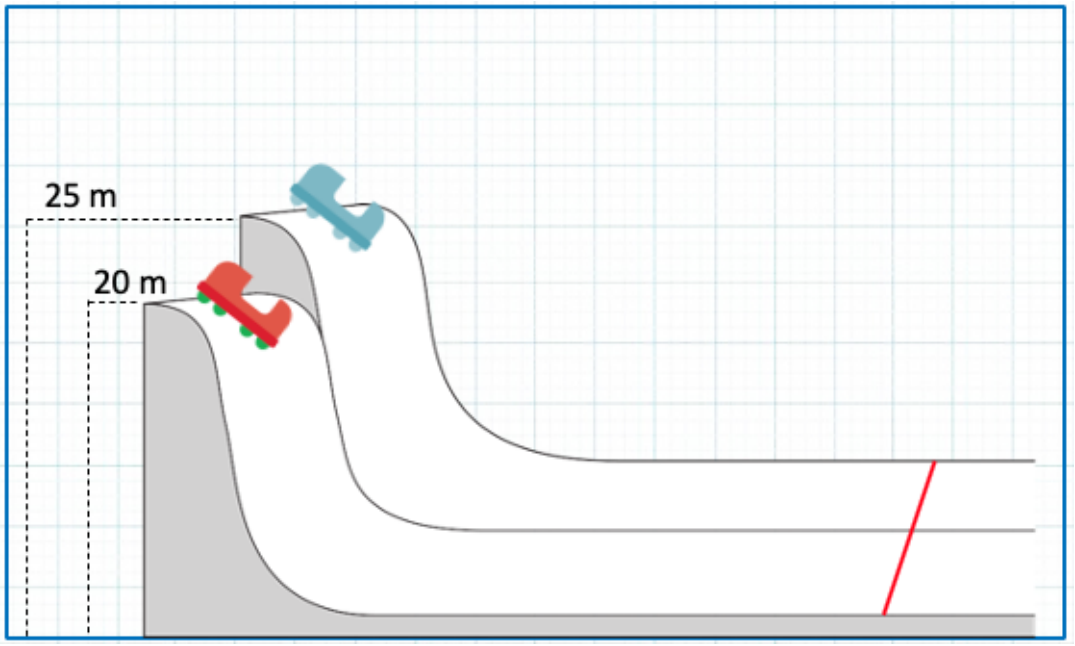
Far Q4 EcT-Pendulum 2



The pendulum swings from Position 1, passes Position 2, and arrives at Position 3. If we use a heavier ball, what is the *highest point* it will reach on its swing?

- Position 2
- Position 3
- Somewhere between Position 2 and Position 3
- Somewhere above Position 3

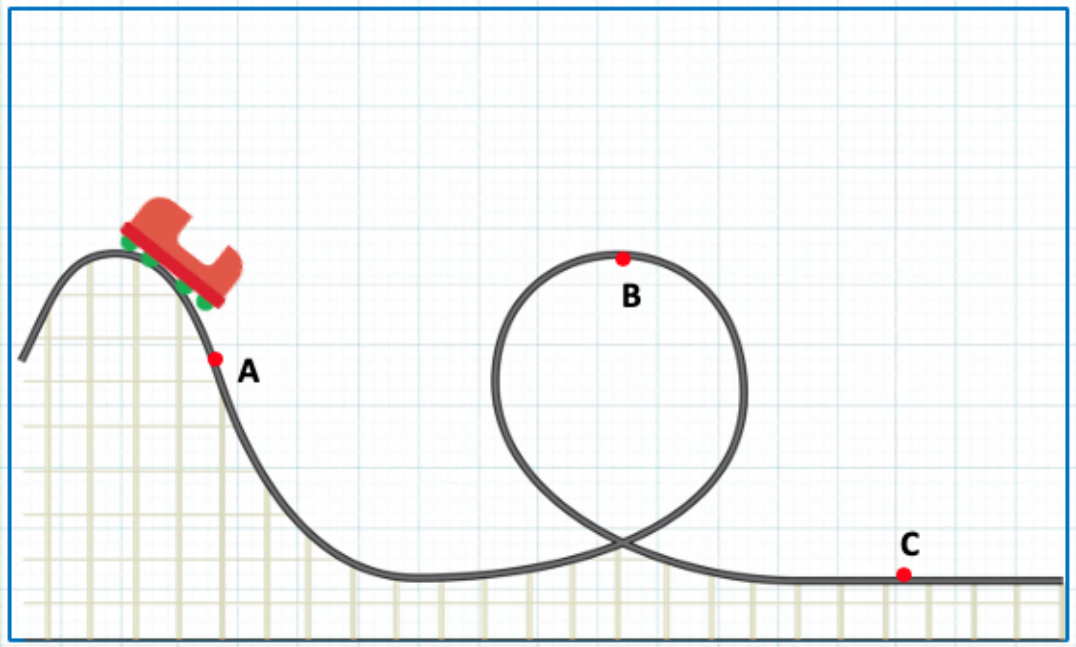
Far Q5 EcT-Ramp 1



Two identical carts are rolling down the ramp. Which cart will have *more speed* at the red line?

- ◯ The red cart
- ◯ The blue cart
- ◯ Both will have the same speed
- ◯ More information is needed

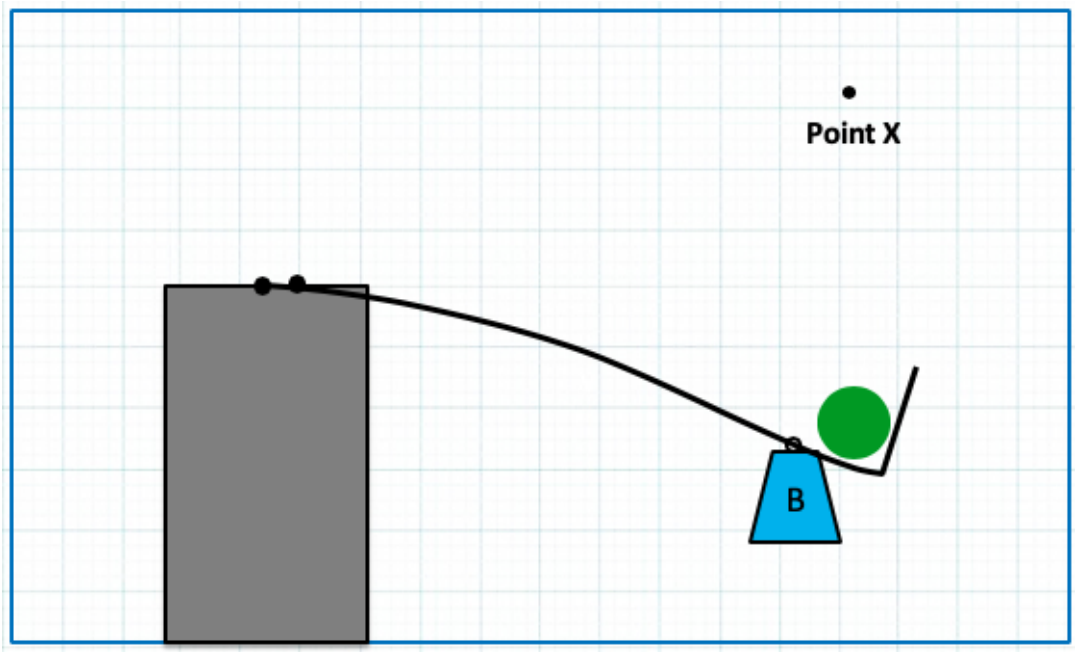
Far Q6 EcT-Ramp 2



The cart rolls down a frictionless rollercoaster. Its kinetic energy is _____.

- ◯ the least at A
- ◯ the least at B
- ◯ the least at C
- ◯ always constant

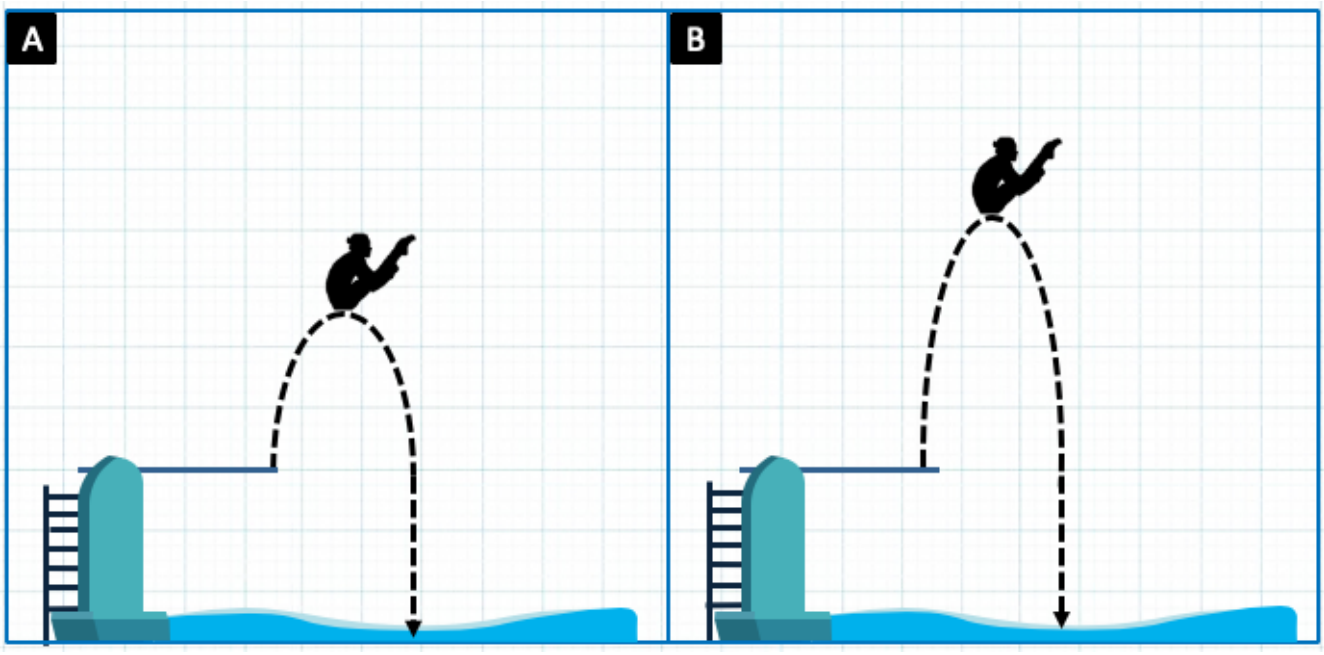
Far Q7 EcT-Springboard 1



A springboard is bent down by weight B. When the weight is released, the green ball flies up into the air to point X. What would make the green ball fly *lower* than point X?

- Increase the mass of the ball
- Decrease the mass of the ball
- Increase the mass of weight B
- More information is needed to answer the question

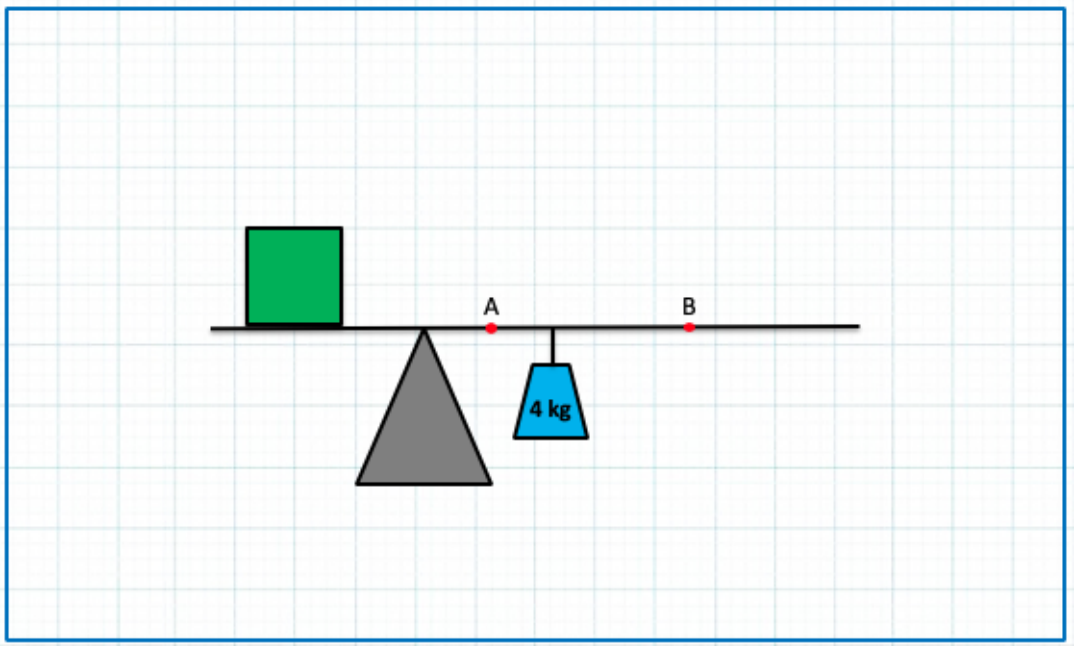
Far Q8 EcT-Springboard 2



Nicole dove twice from a springboard. In her second dive, she jumped higher than her first dive. Which dive bent the board *less*?

- Both dives bent the board the same amount
- The first dive bent the board less than the second dive
- The second dive bent the board less than the first dive
- We don't know because she already jumped

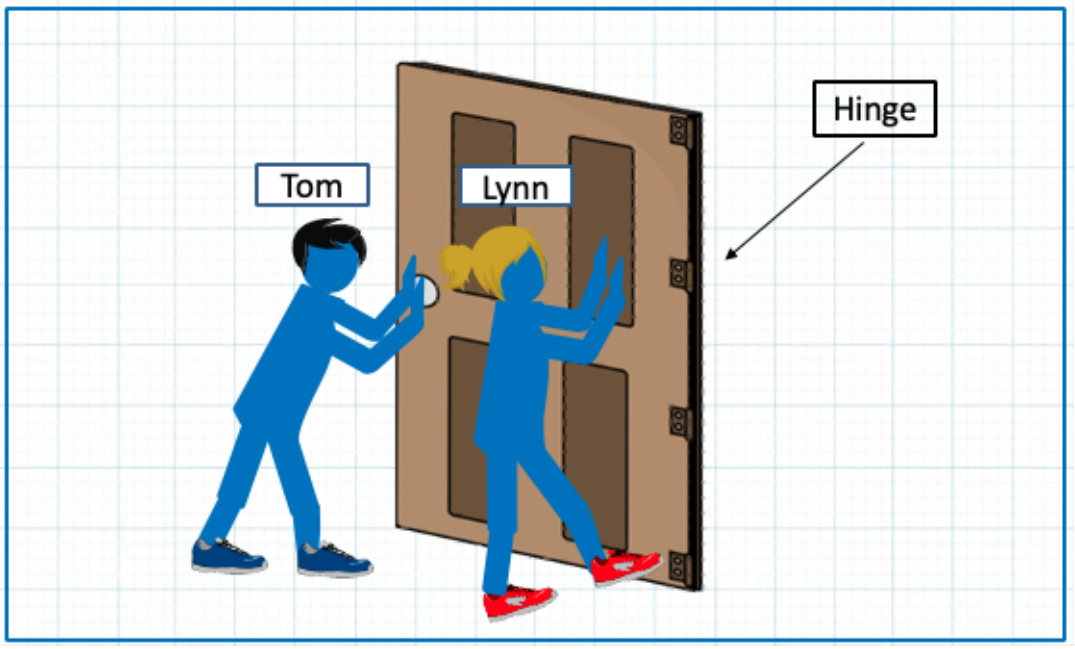
Far Q9 PoT-Lever-Distance



If the lever is balanced in the picture above, which of the following would cause the lever to go unbalanced?

- ◯ Replace 4 kg with 8 kg and move it to point A
- ◯ Replace 4 kg with 8 kg and move it to point B
- ◯ Both
- ◯ Neither

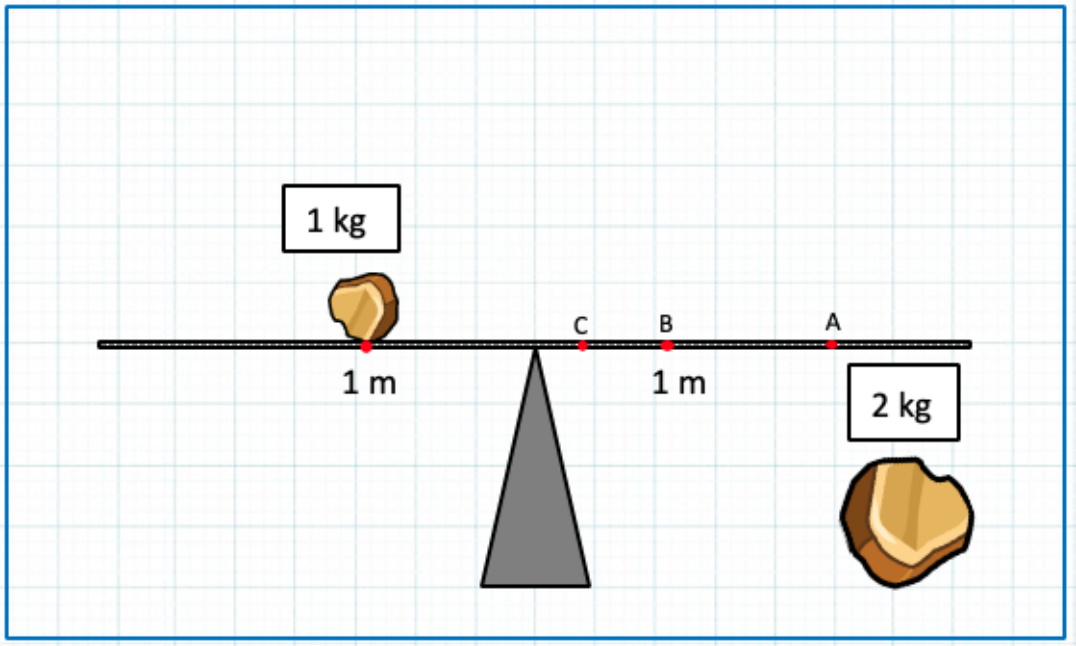
Far Q10 PoT-Lever-Distance 2



Tom and Lynn push a heavy door with the same force but at different positions. Who has the *least* effect on the movement of the door?

- Tom
- Lynn
- They both have an equal effect on the door's movement
- Not enough information

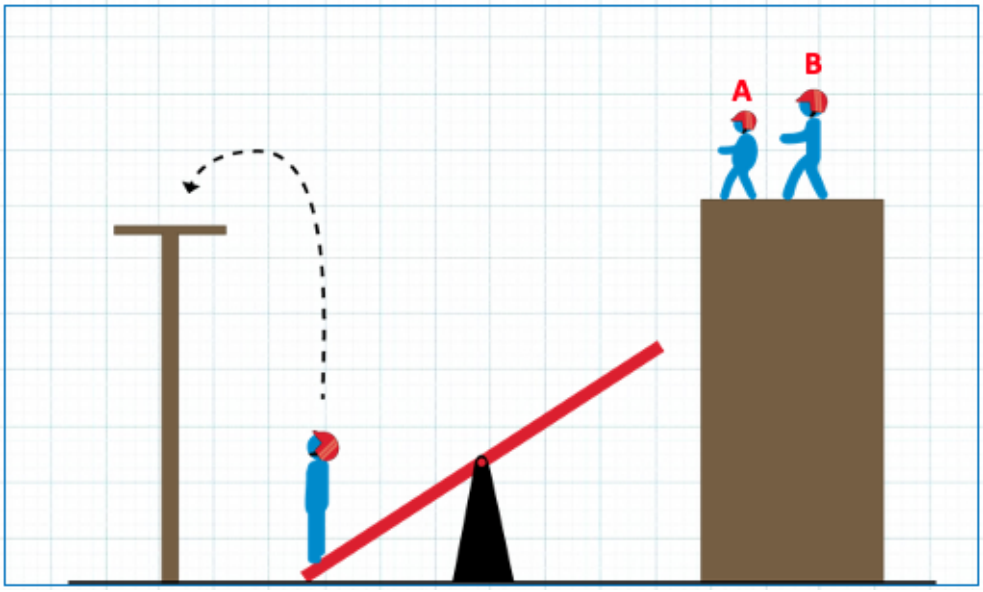
Far Q11 PoT-Lever-Mass



The 1 kg rock is 1 m from the fulcrum. The 2 kg rock is on the ground. How far should you place the 2 kg rock from the fulcrum for the lever to balance?

- Less than 1 m
- Greater than 1 m
- Equal to 1 m
- More information is needed to answer the question

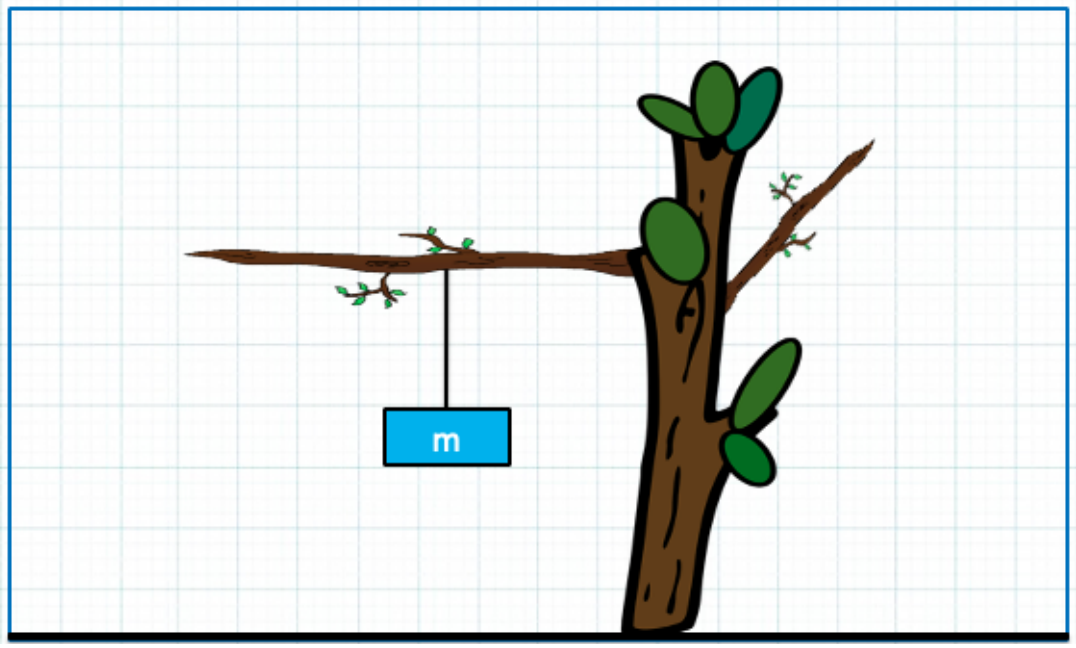
Far Q12 PoT-Lever-Mass 2



An acrobat needs to land on the platform above. At the top of another platform, two acrobats of *the same mass* are ready to land on the opposite side of the lever. Which acrobat (A or B) is *more likely* to launch the first acrobat onto the platform.

- ○ A
- ○ B
- ○ Both will have the same effect on the acrobat
- ○ Not enough information

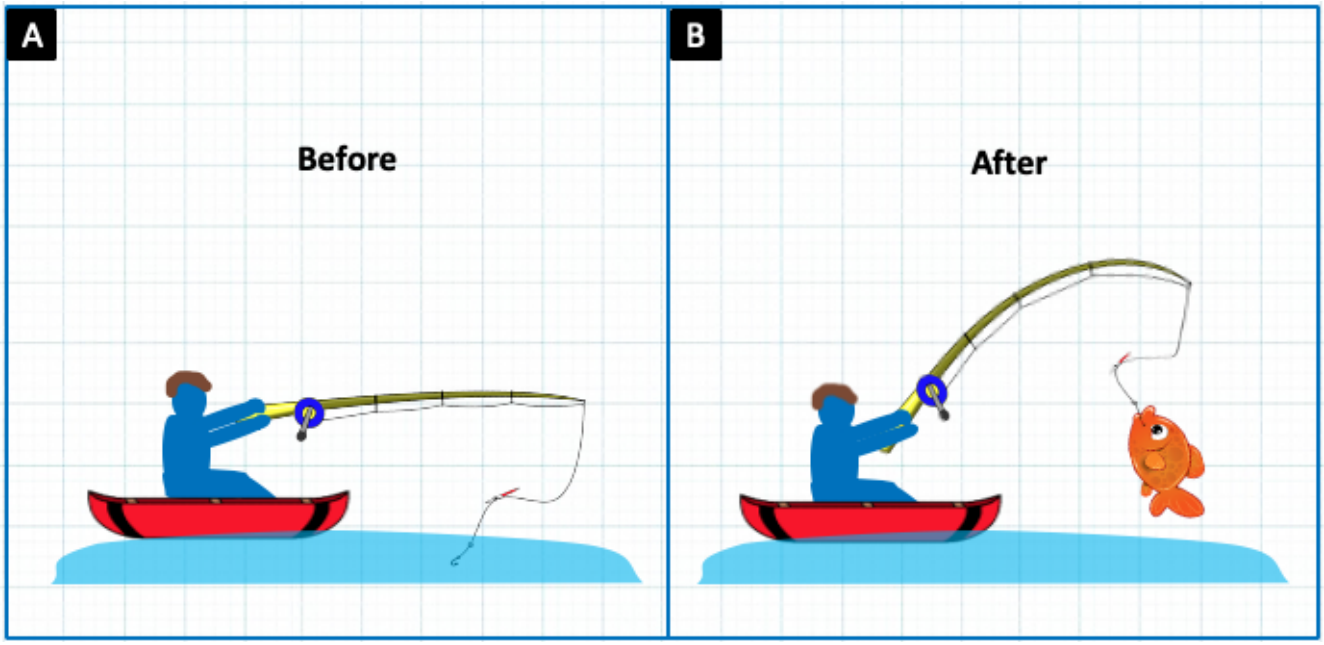
Far Q13 PoT-Springboard 1



An object is hanging on a tree branch. What would make the branch *less likely* to bend?

- ◯ By making the object heavier
- ◯ By moving the object farther from the tree trunk
- ◯ By moving the object closer to the tree trunk
- ◯ Moving the object won't make a difference

Far Q14 PoT-Springboard 2



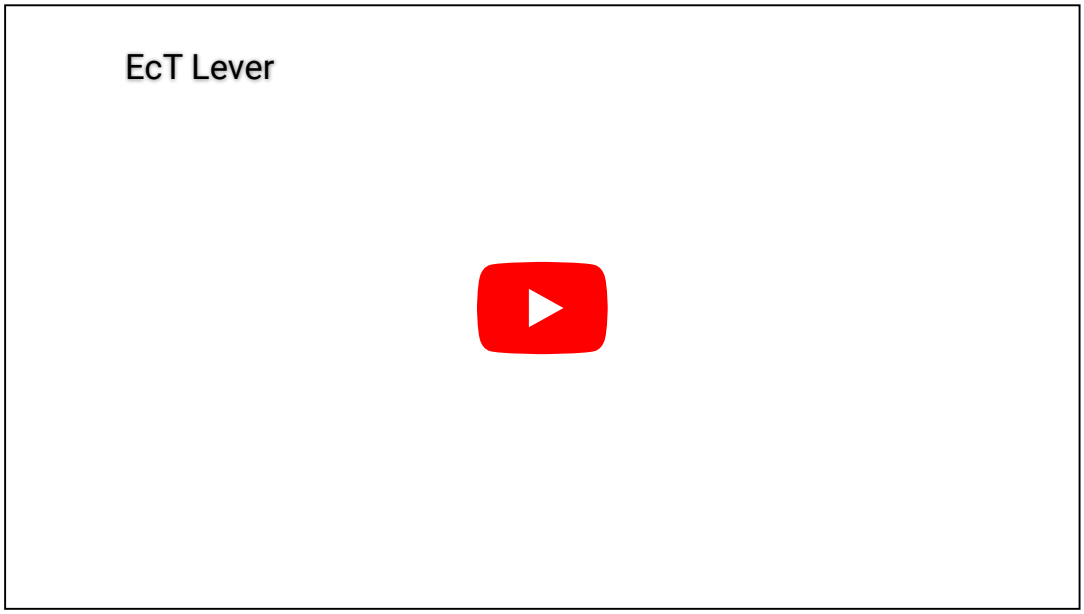
A person is fishing in a stream. If the fishing pole was shorter, it would bend _____.

- more
- less
- the same
- more information is needed

Debrief

Please enter your User ID again:

You may have noticed while you were playing that sometimes a video animating a physics concept played before or after a level. Here is an example of one of these physics animation videos:



Did you see any videos like these while you were playing Physics Playground?

- I saw physics animation videos while I played
- I did not see any videos

Support Questions

The following questions are only for people who saw physics animations either before or after they played a level. If you did not see any physics animations, you do not have to answer these questions.

The physics animations helped me solve levels.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

The physics animations helped me answer the physics test questions.

- Strongly agree
- Somewhat agree

- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

The physics animations helped me learn some physics

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

I'd prefer to play the game without the physics animations.

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

The physics animations were annoying

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

It was unclear how the physics animations were supposed to help me solve the level

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree

- ○ Strongly disagree

The physics animations made me like the game more

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree