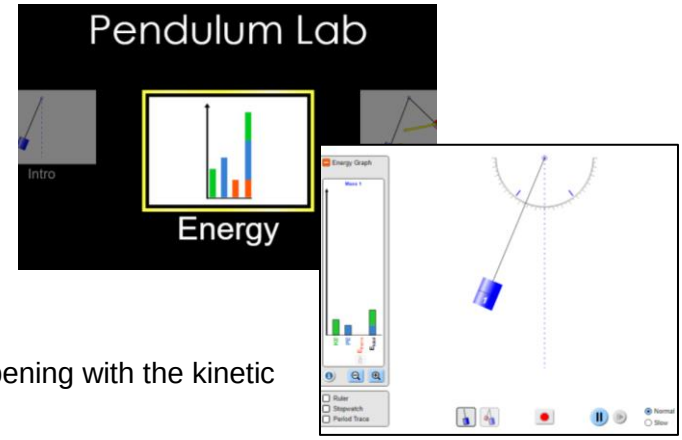
Types of Energy PHET Simulations

Links on google classroom

Name _____ Date _____ Block _____

PENDULUM LAB



- **Click Energy**.
- Click and drag the pendulum to about **35 degrees** to start the motion.
- You may press the SLOW button in the bottom if it makes it easier to view.

Watch the energy bars as the pendulum swings.

1. Explain (in words or with a drawing) what you see happening with the kinetic and potential energy:

2. When the pendulum is all the way to one side, slide gravity to maximum. Describe what happens to the pendulum and its energies.

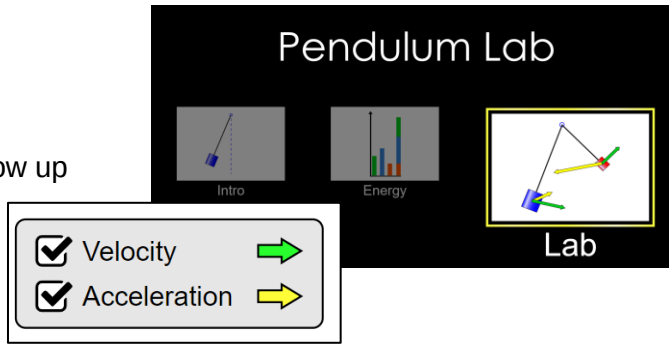
3. When the pendulum is furthest up what is its only energy?

4. When the pendulum is at its low point, what is its only energy?

5. Does the total energy ever change? WHY??

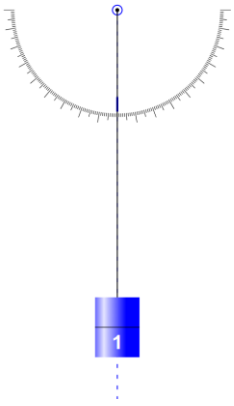
6. Put FRICTION to max. What energy now shows up and what happens to the pendulum?

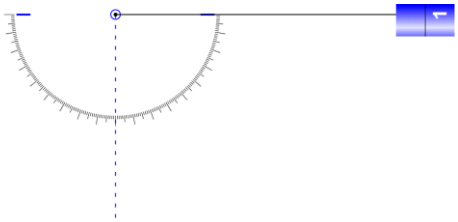
Go back to main page and click on **Pendulum Lab**

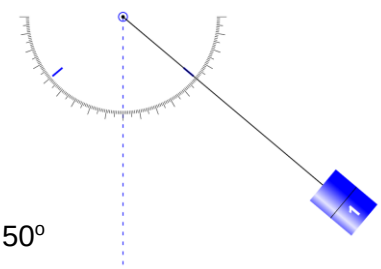


- Click so that velocity & acceleration arrows show up

Draw the velocity & acceleration arrows on the diagrams below at the various positions







MASSES AND SPRINGS and select **ENERGY**

- Set MASS to maximum (300 g)
- Set DAMPING (friction) to ZERO
- Hit SLOW on the bottom right if it helps.
- Click and drag mass to the spring

Circle the following answers

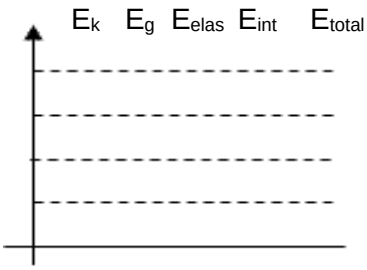
1. Where is KE (kinetic) the highest: **Bottom** **Middle** **Top**

2. Where is PE_{grav} (potential from gravity) the highest: **Bottom** **Middle** **Top**

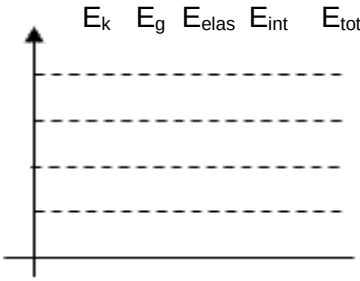
3. Where is PE_{elas} (elastic) the highest: **Bottom** **Middle** **Top**

4. Does the total ever change? **YES** **NO**

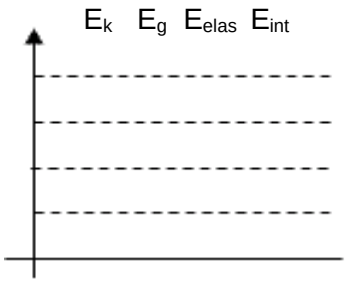
5. Draw all the energies of the spring at the following points:



spring at the top



spring half way down



spring at the bottom

6. When the spring gets to the top, Make mass HALF as big. What happens to all your energies?

7. Put damping (friction) on. What changes in your energy bars and what eventually happens to the mass and spring?

8. Think of the forces acting on the mass. What is the force pulling the mass and thus the spring down to stretch it?