

# The Potential to Win

*Potential and Kinetic Energy*

**GAMERS**

**QUEST 8  
PHYSICS**

**STATE FAIR OF TEXAS  
CURRICULUM**

## STUDENT EDITION

**Recap**  
You will be going  
with a friend to the  
State Fair of Texas  
to observe the laws  
of potential and  
kinetic energy as  
you play games on  
the Midway!

### STATE FAIR MAP



Recall from your discussion in class:

- ★ The scientific definition of work ( $W = Fx$ ) and the measurement of work (Joule).
- ★ Conservation of energy and conservation of momentum.
- ★ The terms **kinetic** and **potential** energy.



#### Plan Your Route

- ★ Enter through Gate 10, if you can.
- ★ Make your way to the Midway, in the center of the Fair.



#### Optional Materials to Bring

- ★ Writing utensil and something to write on (like this sheet of paper!)
- OR
- ★ A way to digitally take notes
  - ★ A device with a slow motion camera or the free SloPro app



Source: <http://www.sparticl.org/assets/uploads/images/resource-images/54786-cropped.jpg>

#### While You're There

You will use information you gather at the State Fair to help you with THREE project goals:

1. Come up with a theory on what type of throw and energy changes makes for more successes when playing games on the Midway.
2. Design a drawing of one of your friends in action, based on the work of Chuck Close.
3. Compose a Descriptive Poem about your experiences today.

$$EF \parallel AD, EF = (a + b) / 2$$

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The objective of your visit is to watch (or play) Midway games to observe the laws of conservation of energy and conservation of momentum. Examine how changes in energy make players successful...or not so successful.

★**THE POTENTIAL TO WIN:** Find a throwing game on the Midway, and observe the different ways players are throwing the projectile.

- o Are players throwing directly at the target, or using more of an arch?
- o Record the game type, throwing style, and success rates of a few players.
- o =Use your slow motion camera or app to record the path of the projectile.

★**CLOSE-UP ACTION (ART COMPONENT):** As you are observing your peers throw an object at a target at the Fair, take a number of photos of them in action.

- o =If possible, have your friends pause in an action pose so that you can get a clear shot of them.
- o If you are not able to bring a camera, create a number of strong sketches of your friend in their action pose.
- o Also, take note of the object that they are throwing (basketball, dart, baseball, etc.).



Source: [http://www.artsobserver.com/wp-content/uploads/2012/11/IMG\\_3733.jpg](http://www.artsobserver.com/wp-content/uploads/2012/11/IMG_3733.jpg)



### Back at School

When you return to class following your State Fair visit, you will work on your three projects. See your teachers for more information.