

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Sparking Ideas About Uniform Motion

### Warm-up: Cart Experiments

In order to understand the spark timers that we will be using today, we are going to do a short experiment with a cart, a volunteer from the class who will be the cart rider, and some bean bags. As a class we will act as a makeshift metronome, clapping a constant beat while counting together. Every time we clap, the rider will place one beanbag on the floor.

### Prediction 1

The rider on the cart will be pulled in a straight line and at an approximately *constant speed* for the count of 6 handclaps. Make a sketch of what you think the trail of bean bags will look like afterward.

### Observation 1

Make a sketch of what actually happened.

### Prediction 2

Now we will keep clapping the same, the rider on the cart will be pulled along faster. How do you think the spacing of the bean bags will compare to the first time?

### Observation 2

What actually happened? Why might this have happened?



## Procedures: What You Do

### Data Collection

1. Make sure the timer tape is shiny side up and that the spark timer is set to 10Hz.
2. Feed the timer tape through the spark timer following the arrow.
3. Tape the timer tape to the back of the car.
4. Make sure the car has a clear path and is aimed straight away from the timer.
5. Turn on the spark timer, THEN turn on the car.
6. Let the car pull the entire strip of tape through the spark timer.
7. Turn off the car and the spark timer.
8. Make sure your timer tape has spark marks on it! If not, ask for help. Do NOT reuse the tape.

### Data Analysis

1. Hold your timer tape so the first (darkest) spark marks are on the left.



2. Using a ruler, **draw lines** across your timer tape (perpendicular to the edges) and through each pair of spark marks, starting from the left and working right.



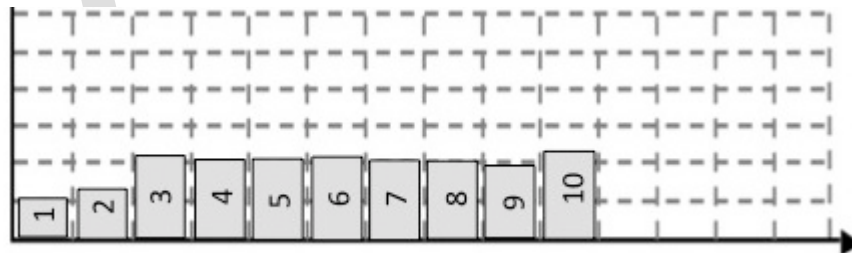
3. **Label** each segment of your timer tape, 1 through 10 (it's ok if you have more than 10 segments but you may stop at ten for now).



4. **Cut** along the perpendicular lines that you drew in Step 2, making small strips of labeled paper. (If you have more than one timer tape, do one at a time to avoid mixing them up!)



5. **Glue** your strips of paper on the grid in sequential order to make a bar graph, starting from the left.



6. Remember to label the axis and give the graph a title!

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### Sparking Ideas About Uniform Motion - Results

