

Forces and Motion Student Workbook

Name _____

Name: _____

What Makes Objects Move the Way They do?

Observe the slime and the magnets. What do you notice? What do you wonder? Write your thoughts below.



Notice

Wonder

--	--

Draw a model of what makes the slime move. Be sure to label your thinking.

Magnet Exploration: I notice, I wonder

Station	I noticed...	I wonder...
1 		
2 		



3



4



Magnet Exploration: I notice, I wonder

Station	I noticed...	I wonder...
5 		
6 		

7



8



Name _____ Magnetism Model

Name: _____

What Makes Objects Move the Way They do?

Observe the "Can Can Go". What do you notice? What do you wonder? Write your thoughts below.



Notice

Wonder

--	--

Draw a model of what makes the can move. Be sure to label your thinking.

Movement of Objects Exploration: I notice, I wonder

Station	I noticed...	I wonder...
1 		
2 		

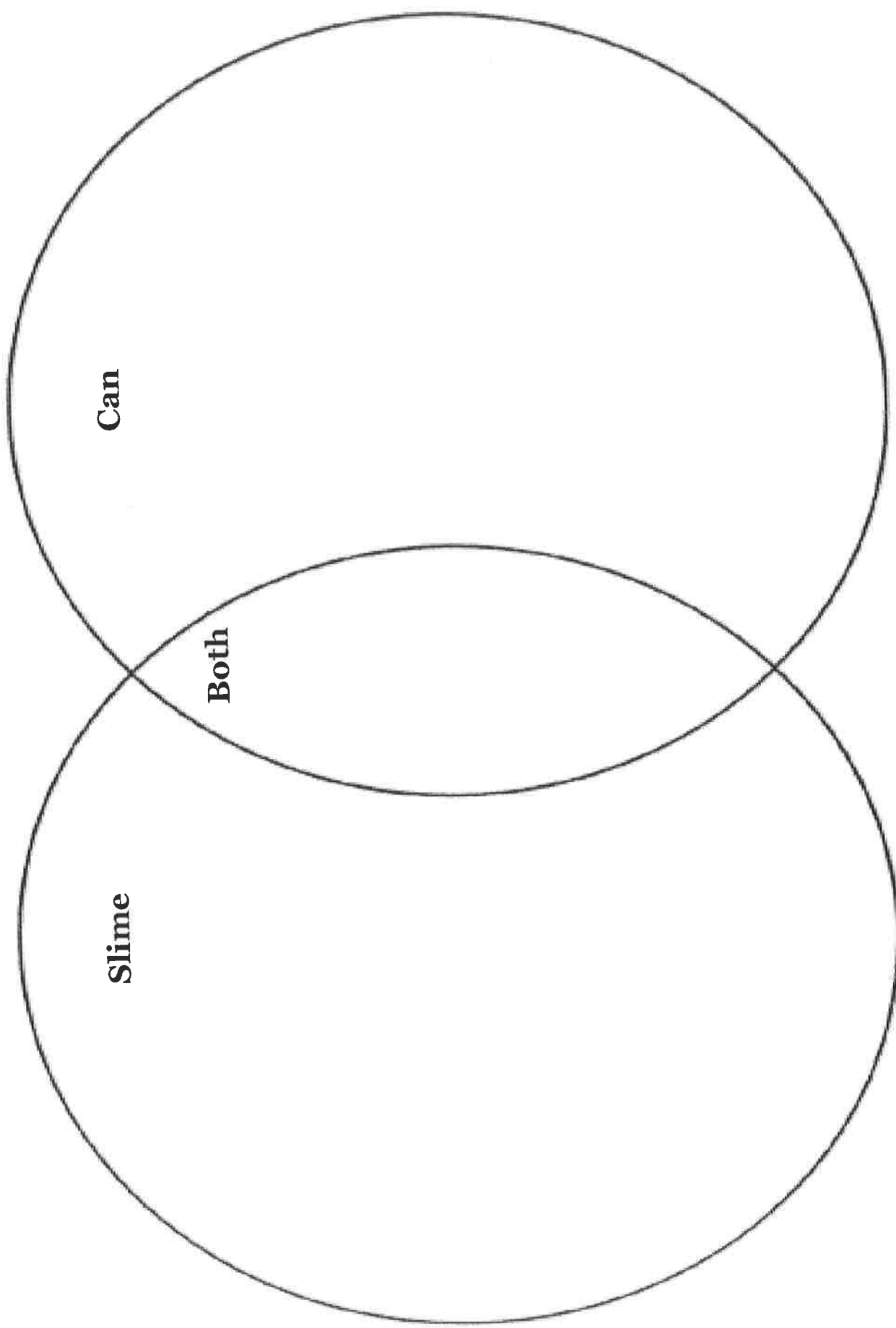
3



4
























Forces



Members of my Group:

How do I change how the ball travels?

Directions: Make a dot where the kicker makes contact with the ball and mark the box that best shows how the ball moved.

Test	Where did the kick make contact with the ball?	How did the ball travel?
Sample		<input type="checkbox"/>  <input checked="" type="checkbox"/> 
1		<input type="checkbox"/>  <input type="checkbox"/> 
2		<input type="checkbox"/>  <input type="checkbox"/> 
3		<input type="checkbox"/>  <input type="checkbox"/> 
4		<input type="checkbox"/>  <input type="checkbox"/> 
5		<input type="checkbox"/>  <input type="checkbox"/> 
6		<input type="checkbox"/>  <input type="checkbox"/> 

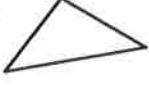
Model Template for Kickball Discussion: Include these concepts in the discussion: force strength, force direction, push, pull



Group Members: _____

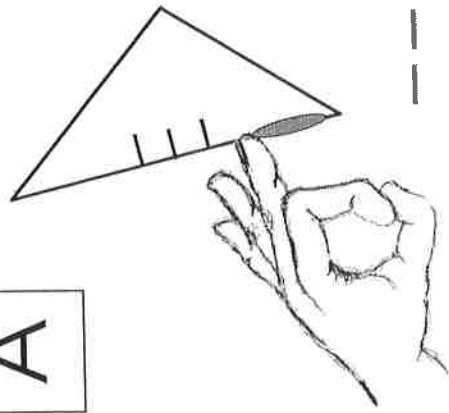
Paper Football Observation Sheet

Directions: Make a dot where the finger makes contact with the football and write your observations of how the football moved.

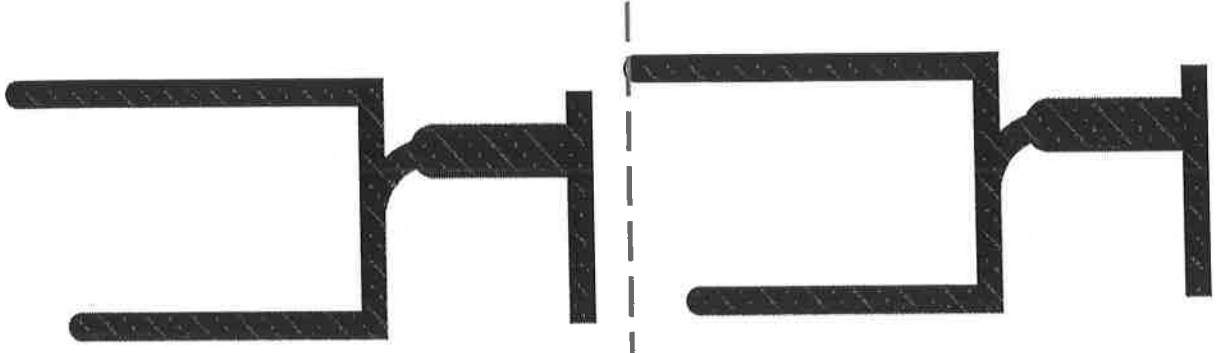
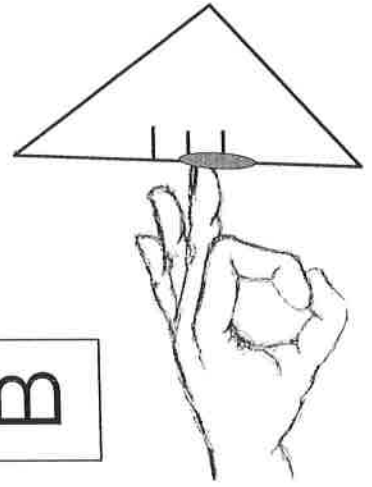
Test	Where is the flick point?	Observations
1		
2		
3		
4		
5		
6		

Which finger flick will allow the player to get the ball through the field goal posts?

A



B



Downhill Racer Investigation- Day 1

Investigation details:

We will change the strength of the push or pull by...

We will measure from _____ to _____
We will use _____ (device) to measure in _____ (units)

Draw picture of measurement area here:



Things we cannot move or change

Downhill Racer Investigation- Day 2

Strength of push or pull	Measurement	Observations

Data Patterns: Use the one of the sentence starters to identify patterns in your collected data.

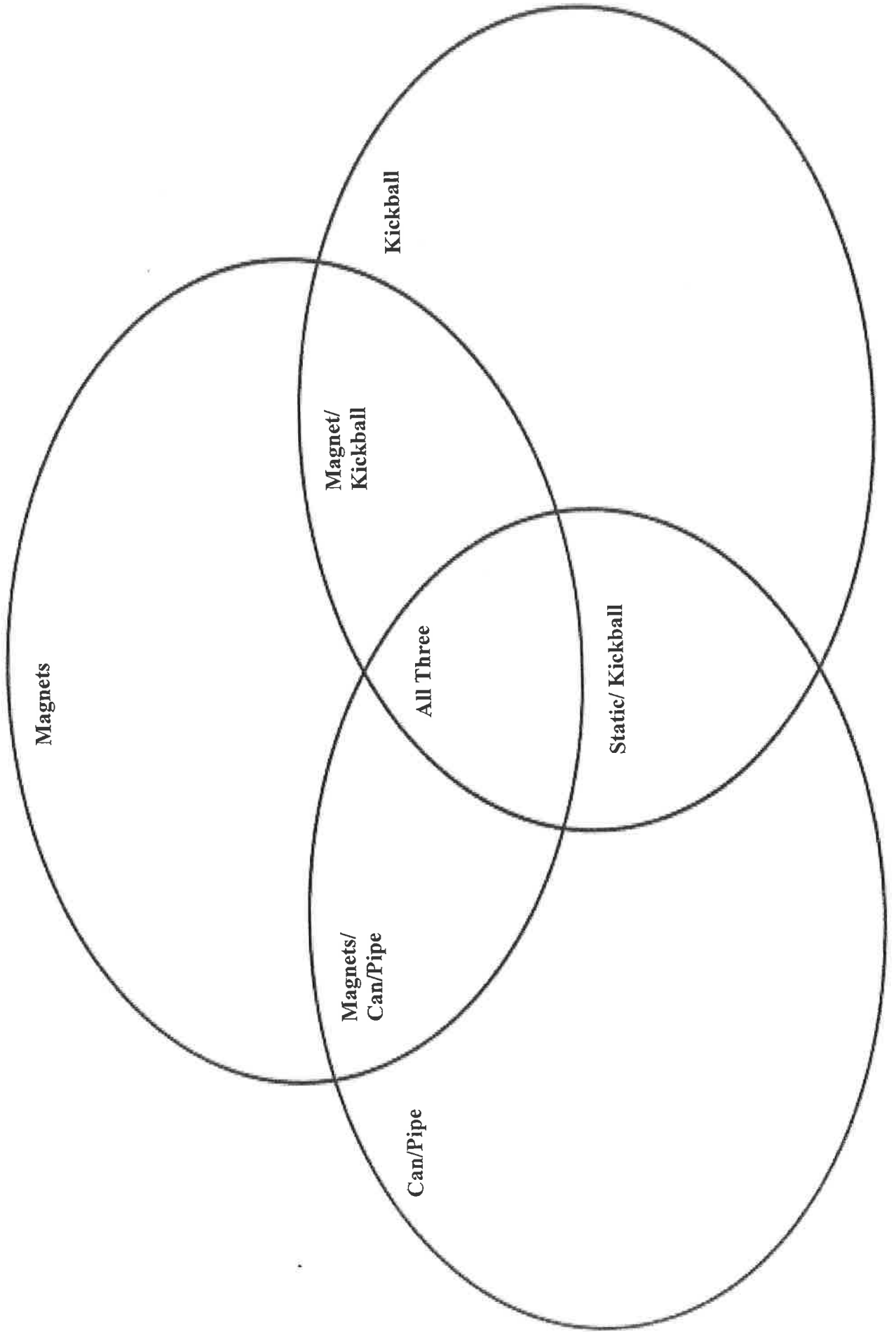
Make a prediction: Make a prediction for how the object's motion might change using the pattern you identified.

Patterns

- The pattern I see is _____.
- I noticed that _____ is similar to _____.
- I noticed that _____ is different from _____.
- If this pattern continues, I predict _____.
- The pattern on the graph shows _____.
- When I see the pattern change this way, I think _____ is causing the change.
- At this scale/size, the pattern is _____ and on a larger/smaller scale the pattern is _____.
- I will redesign the solution by _____ based on the pattern of performance of _____.

**** Enlarge to an 11" x 17" paper.**

Force



Define the problem we will solve using magnets:

My Design Model with labels and explanations: