

Name: _____

Softballs vs. Baseballs

GRADES 3-5

Describe how each ball will function as a softball. Think about the distance and bounce-ability of each ball type.

Tennis ball:

Golf ball:

Baseball:

Ping Pong ball:

Using the data collected, identify properties and materials support a softball's function.

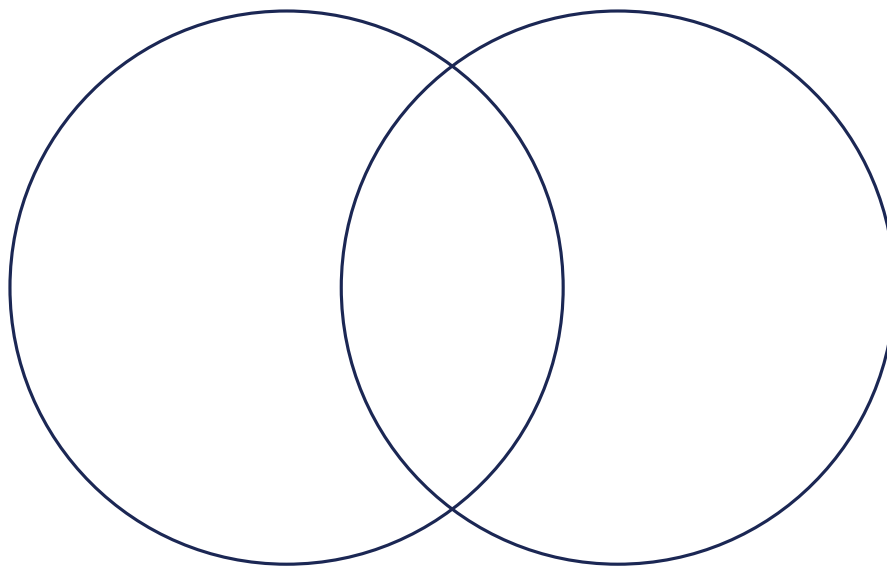
	Size/Shape	Materials	Weight	Texture	Other Features
Tennis ball					
Golf ball					
Baseball					
Softball					
Ping Pong ball					

Name: _____

Softballs vs. Baseballs

GRADES 3-5

Using the data collected, pick one other ball and fill in the Venn diagram comparing and contrasting the ball's properties.



Using the data collected, what properties (traits) and materials support a softball's function (purpose)?

<p>The function of a softball is:</p>	<p>One property that I observe that supports a softball's function is:</p>
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Extend only:

Hit each ball five (5) times: tennis, golf, baseball, softball, and ping pong. How does each ball function differently when hit? Use descriptive words and details to compare and contrast.

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The Field of Play

GRADES 3-5

General Similarities and Differences

Field 1	Field 2	Field 3	Scaled Field (.5 = 30 feet)
			Distance from home plate down the foul line: • Measured ____ *30 = Actual ____ Distance from home plate to the pitcher's mound • Measured ____ *30 = Actual ____ Distance from home plate to first base • Measured ____ *30 = Actual ____

1. What are similarities and differences between baseball fields of the past and today's baseball field?
2. Based on your list of similarities and differences, what field would you prefer to play on and why?
3. How has technology changed the field of play? Has it helped or hurt the game? Explain.
4. How would a change in field size impact the game?

Name: _____

Is it a Ball or Strike

GRADES 3-5

Explore: Place an "X" for a strike and a "O" for a ball.

	Pitch 1	Pitch 2	Pitch 3	Pitch 4	Pitch 5
Player 1					
Player 2					
Player 3					

Elaborate: Place an "X" for a strike and a "O" for a ball.

	Pitch 1	Pitch 2	Pitch 3	Pitch 4	Pitch 5
Player 1 Accuracy					
Player 1 Speed					
Player 2 Accuracy					
Player 2 Speed					
Player 3 Accuracy					
Player 3 Speed					

1. Write a mathematical expression using greater than and less than symbols putting each pitch type in order from most accurate (X) and least accurate (O). Support your expression with written justification.

2. Make a claim and support it with evidence from your experiment: How does speed change accuracy?

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Advancements in Baseball

GRADES 3-5

Circle your stance regarding instant replay: For or Against

Brainstorm: What problems do instant replay solve?

OR

What problems do instant replay cause?

Criteria for Improvements/Changes of Instant Replay	Constraints for Improvements/Changes of Instant Replay

Name: _____

What is a Golf Ball?

GRADES 3-5

Predictions: Describe how each ball will function as a golf ball. Think about controlling the direction, distance, and bounce of each ball.

Tennis ball: _____

Baseball: _____

Softball: _____

Ping Pong ball: _____

	Distance of Putt 1	Distance of Putt 2	Distance of Putt 3	Distance of Putt 4	Distance of Putt 5	Number of putts to hit the target
Tennis ball						
Golf ball						
Baseball						
Softball						
Ping Pong ball						

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What is a Golf Ball?

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	Circumference	Materials	Weight	Texture	Other Features
Tennis ball					
Golf ball					
Baseball					
Softball					
Ping Pong ball					

Use the data from the three data tables: What properties and materials support a golf ball's function? How do they differ from the other ball's properties?

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Scoring in Golf

GRADES 3-5



HOLE	1	2	3	4	5	6	7	8	9	TOTAL	10	11	12	13	14	15	16	17	18	TOTAL	18-Hole TOTAL	SCORE
PAR	5	4	3	4	4	5	3	4	4	36	4	4	3	4	5	3	4	5	4	36	72	
Bradley	5	4	2	5	4	4	2	4	5	35	3	4	4	4	4	4	5	5	4	37	72	E
Snell	4	4	3	4	5	5	2	4	5	36	4	3	4	5	4	2	5	6	4	37	73	+1
Smith	5	4	4	4	5	4	3	4	4	37	4	3	3	6	5	4	4	5	4	38	75	+3
Bradshaw	4	5	3	4	5	4	3	5	5	38	4	3	2	5	6	4	4	5	4	37	75	+3
Gibson	5	4	3	3	4	4	3	4	4	37	3	5	4	4	5	4	4	5	4	38	75	+3
Palmer	3	4	3	5	5	5	4	4	4	37	4	5	4	6	5	3	4	6	3	60	77	+5
Raymo	4	5	3	5	5	6	2	5	4	39	3	6	3	5	6	3	4	6	3	39	78	+6
Davis	5	3	4	4	5	5	3	4	6	39	5	4	3	5	6	4	4	5	4	40	79	+7
Marone	6	4	3	4	4	5	4	5	5	40	4	4	2	4	5	4	4	5	7	39	79	+7
Stein	5	4	4	5	4	5	4	4	5	40	5	4	3	5	6	3	4	4	6	40	80	+8
Student 1																						
Student 2																						

Based on the scorecard above, what are the steps to calculate a golf score?

- 1.
- 2.
- 3.
- 4.

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Scoring in Golf

GRADES 3-5

5.

6.

Using the scorecard, record and calculate you and your group member's scores.

Write a mathematical expression using greater than and less than symbols that compares you and your classmate's scores. Who would have won the hole?
Using the scorecard, determine who scored an Eagle, Birdie, Par and Bogey.

Eagle Players:

Birdie Players:

Par Players:

Bogey Players:

Name: _____

Force of a Golf Swing

GRADES 3-5

Experimental Guide: Balanced and Unbalanced Forces

Question: How can you increase the distance a golf ball travels?

Hypothesis: If I _____,
then the distance of the golf ball will increase because _____
_____.

Variables:

Independent (circle one):

- Foot position Follow-through Type of club Height of the tee
- Angle of swing Speed of the swing Clubhead speed

Dependent: Distance of the ball.

Control: What other variables will you keep the same?

Experiment Design: Briefly summarize how you will collect your data.

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Force of a Golf Swing

GRADES 3-5

Data: Record the distance in feet for 5 trials.

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
Control (no changes)					
Independent variable					

Analyze: Find the average distance for both the controlled and changed swing and graph your average data comparing the two distances.



Name: _____

Force of a Golf Swing

GRADES 3-5

Report: Answer the following questions.

Did your data support your hypothesis?

How did you change (independent variable) the distance of the ball?

How do you know your change (independent variable) influenced the distance of the ball?

How did your change (independent variable) create an unbalanced force on the ball?

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Force of a Golf Swing

GRADES 3-5

Experimental Guide: Energy and Speed

Question: How can you increase the energy of a golf ball?

Hypothesis: If I _____, then the speed the golf ball will increase because

_____.

Variables:

Independent (circle one):

Foot position Follow-through Type of club Height of the tee

Angle of swing Speed of the swing Clubhead speed

Dependent: Speed of the ball.

Control: What other variables will you keep the same?

Experiment Design: Briefly summarize how you will collect your data.

Name: _____

Force of a Golf Swing

GRADES 3-5

Data: Record the distance in feet for 2 trials.

	Trial 1 Distance	Trial 1 Time	Trial 1 Speed (D/T)	Trial 2 Distance	Trial 2 Time	Trial 2 Speed (D/T)	AVG
Control (no changes)							
Independent variable							

Analyze: Find the average distance for both the controlled and changed swing and graph your average data comparing the two speeds.



Name: _____

Force of a Golf Swing

GRADES 3-5

Report: Answer the following questions.

Did your data support your hypothesis?

How did you change (independent variable) the energy of the ball?

How do you know your change (independent variable) influenced the energy of the ball?

Describe the collision between the ball and the club. How did the collision change in your experiment?

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Climate and Weather in Golf

GRADES 3-5

Look at the maps. What do you notice, wonder, and think about what you see?

Notice (Observe)	Wonder (Question)	Think (Infer)
Guiding Question: Why do you think some areas have more golf courses than others?		

Notice (Observe)	Wonder (Question)	Think (Infer)
Guiding Question: What connection do you see between climate and golf course concentration?		

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Climate and Weather in Golf

GRADES 3-5

Circle your US region choice:

Northeast

Northwest

Southwest

South

Midwest

Mountain

Does the climate, precipitation, and temperature of your regional area support golf courses?

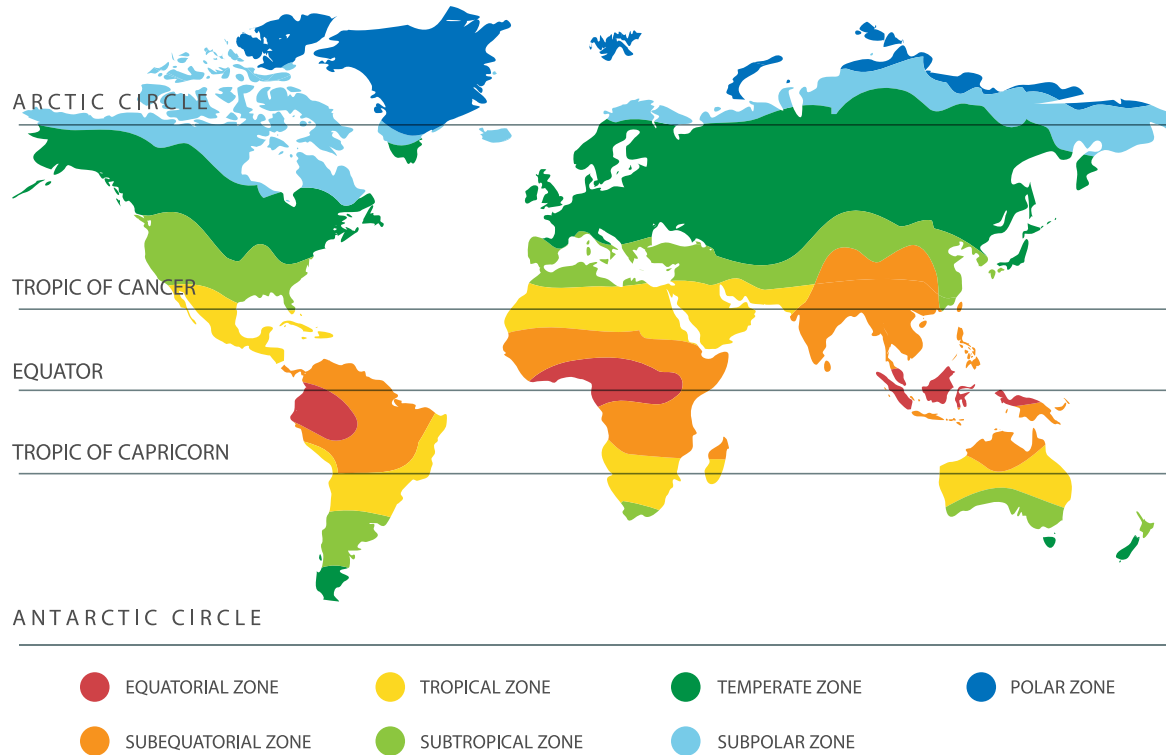
What evidence from the climate maps supports your claim from above?

Why does the climate of your region either support or not support golf courses? List at least three reasons.

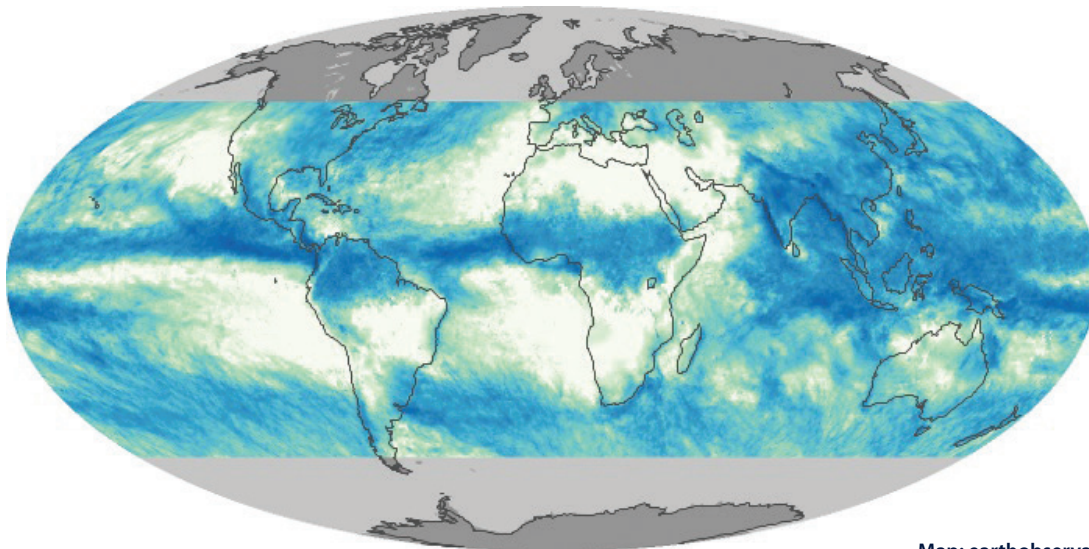
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Climate and Weather in Golf

GRADES 3-5



Total Rainfall - July 2016



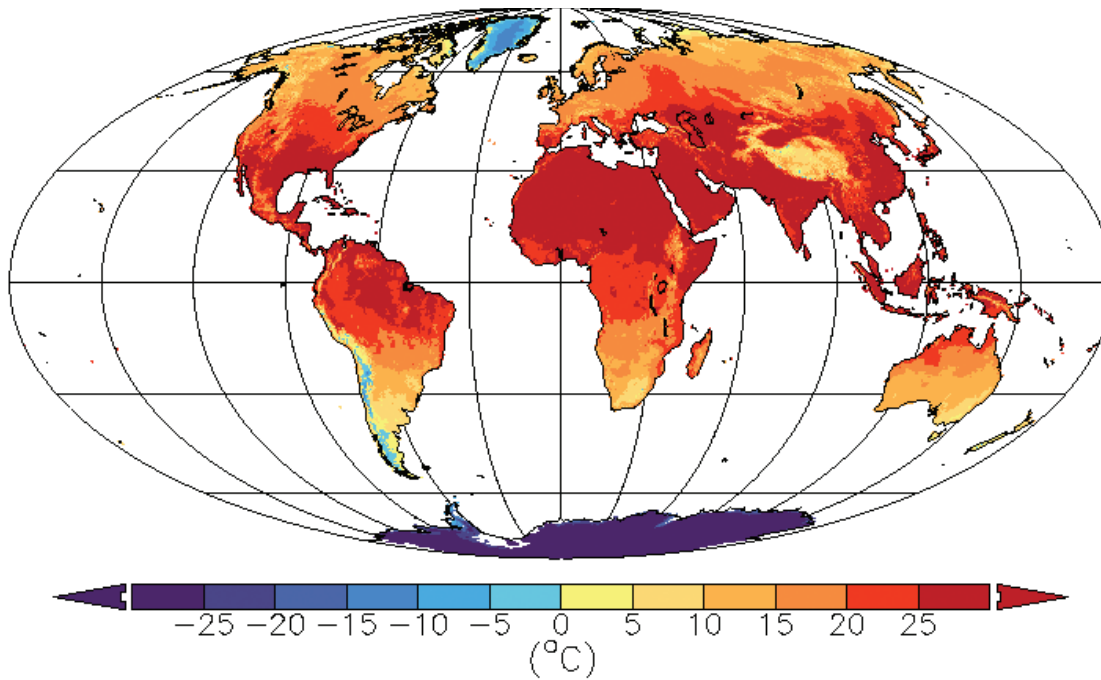
Map: earthobservatory.nasa.gov/

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Climate and Weather in Golf

GRADES 3-5

Monthly Mean Air Temperature (July, 2000)



Map: Matsuura, Kenji & National Center for Atmospheric Research Staff (Eds). Last modified 08 May 2020. "The Climate Data Guide: Global (land) precipitation and temperature: Willmott & Matsuura, University of Delaware." Retrieved from <https://climatedataguide.ucar.edu/climate-data/global-land-precipitation-and-temperature-willmott-matsuura-university-delaware>.

Make a prediction based on the weather/climate where there would be more golf courses, and support your answer with evidence from the graph and scientific reasoning.
