Name: _____

Golf Measurements

GRADES 3-5

Total Distance of Fairway: _____

Trial 1

	Distance of hit (feet)	Distance remaining (feet)	Distance of hit (yards)	Distance of hit (meters)	*Extend:* Distance of hit (inches)
Hit 1					
Hit 2					
Hit 3					
Hit 4					
Hit 5					

Trial 2

	Distance of hit (feet)	Distance remaining (feet)	Distance of hit (yards)	Distance of hit (meters)	*Extend:* Distance of hit (inches)
Hit 1					
Hit 2					
Hit 3					
Hit 4					
Hit 5					

Trial 3

	Distance of hit (feet)	Distance remaining (feet)	Distance of hit (yards)	Distance of hit (meters)	*Extend:* Distance of hit (inches)
Hit 1					
Hit 2					
Hit 3					
Hit 4					
Hit 5					

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Golf Measurements

GRADES 3-5

Trial 4

	Distance of hit (feet)	Distance remaining (feet)	Distance of hit (yards)	Distance of hit (meters)	*Extend:* Distance of hit (inches)
Hit 1					
Hit 2					
Hit 3					
Hit 4					
Hit 5					

Write an expression for calculating the distance remaining.

_____

Write an expression for converting from feet to yards.

_____

Write an expression for converting from yards to meters.

_____

Write an expression for converting from yards to feet.

_____

Write an expression for converting from feet to inches.

_____

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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.

_____

_____

_____

_____

_____

_____

Name: _____

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.
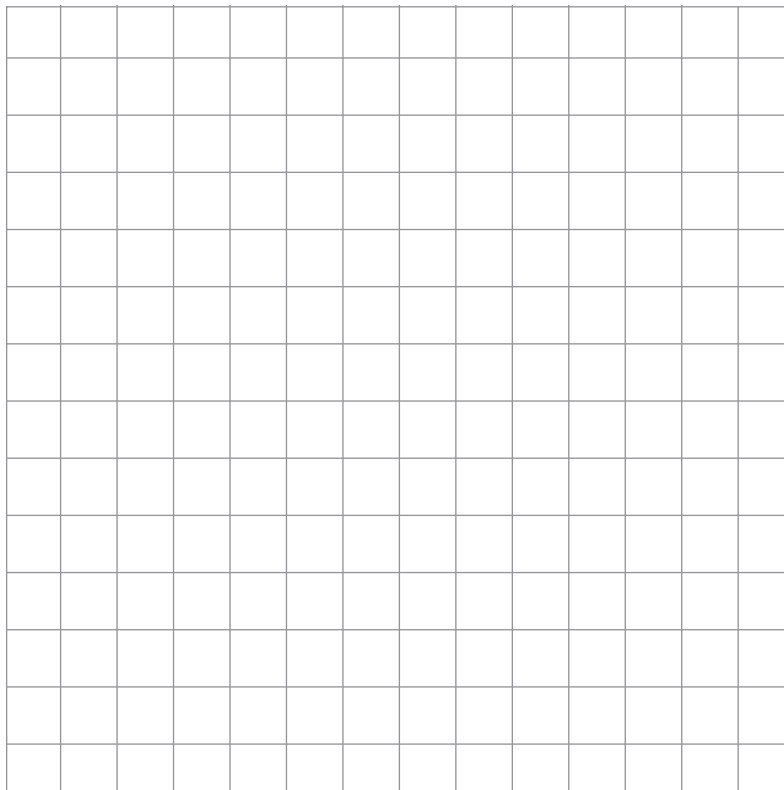
Name: _____

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?

_____

_____

_____

Name: _____

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.

_____

_____

_____

_____

_____

_____

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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.

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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?

_____

_____

_____

Name: _____

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.

Name: _____

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: _____

Engineering a Pushcart
GRADES 3-5

Create a device that will help someone move their golf bag throughout the course to eliminate the weight challenge of carrying the clubs 3-4 miles.

Criteria	Constraints

Option 1: Potential Design

Engineering a Pushcart
GRADES 3-5

Option 2: Potential Design

Option 3: Potential Design

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?

GRADES 3-5

	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?

_____

_____

_____

_____

_____

Name: _____

Angles
GRADES 3-5

Diagram the Putter and Iron using angles and lines:

Make a prediction

How does a club's angle influence the height and distance of the ball? A larger angle will _____ (increase, decrease) the height and _____ (increase, decrease) the distance.

Driver

Putter

5 Iron

Wedge

Sand Wedge
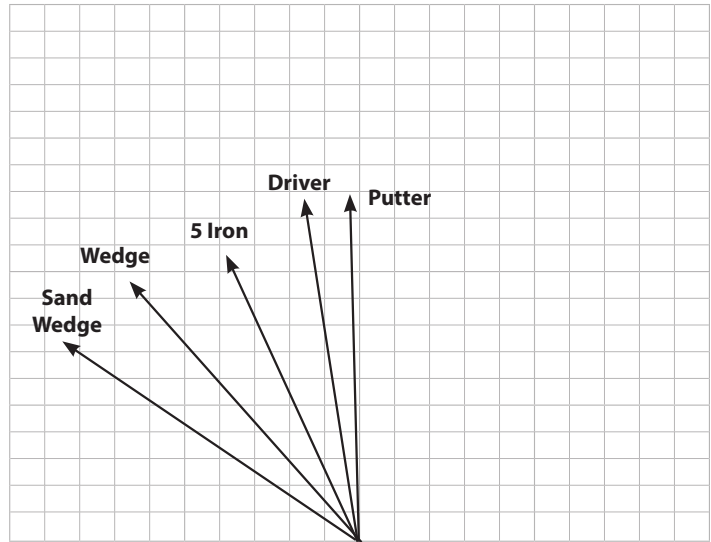
Collect Data

Using the data table, hit the PGA Tour Tee-Up balls three times with each club.

	Trial 1 Distance	Trial 2 Distance	Trial 3 Distance
Putter			
Iron			

Name: _____

Angles

GRADES 3-5

Using the data table, hit the PGA Tour Tee-Up balls at the target (soccer net, gym wall, etc.) three times with each club and measure the height of the hit. Remember to control the style and force of your swing. You should swing the same way for each trial.

	Trial 1 Height	Trial 2 Height	Trial 3 Height
Putter			
Iron			

Conclusion

How does the angle of the club influence the height and distance of the ball? Use evidence from your experiment to support your answer.

_____

_____

Based on what you know about angles, how does the change in angle affect the *height* of the ball?

_____

_____

Based on what you know about angles, how does the change in angle affect the *distance* of the ball?

_____

_____

Golf Courses

Patchy vs. Dense Grass
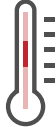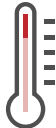
Name: _____

Water in Golf

GRADES 3-5

SCENARIO CARDS

	Temperature	Weather	Sunlight	Risk
Winter Desert	45-75 °F	Wettest month of the year	Moderate sunlight	Flooding
Summer Desert	80-110 °F	Summer storms and monsoons (excessive rain in short amount of time)	Intense sunlight	Drought and Flooding
Spring Highland	25-75 °F	Rain and snow showers possible	Intense sunlight	Spring Runoff (Flooding)
Tropical	65-85 °F	Frequent rain and potential tropical storms	Constant sunlight	Flooding
Spring Humid Continental	25-65 °F	Rain and snow showers possible	Moderate to limited sunlight	Flooding
Summer Arid	65-95 °F	Dry	Moderate sunlight	Drought

Name: _____

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?		

Name: _____

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?
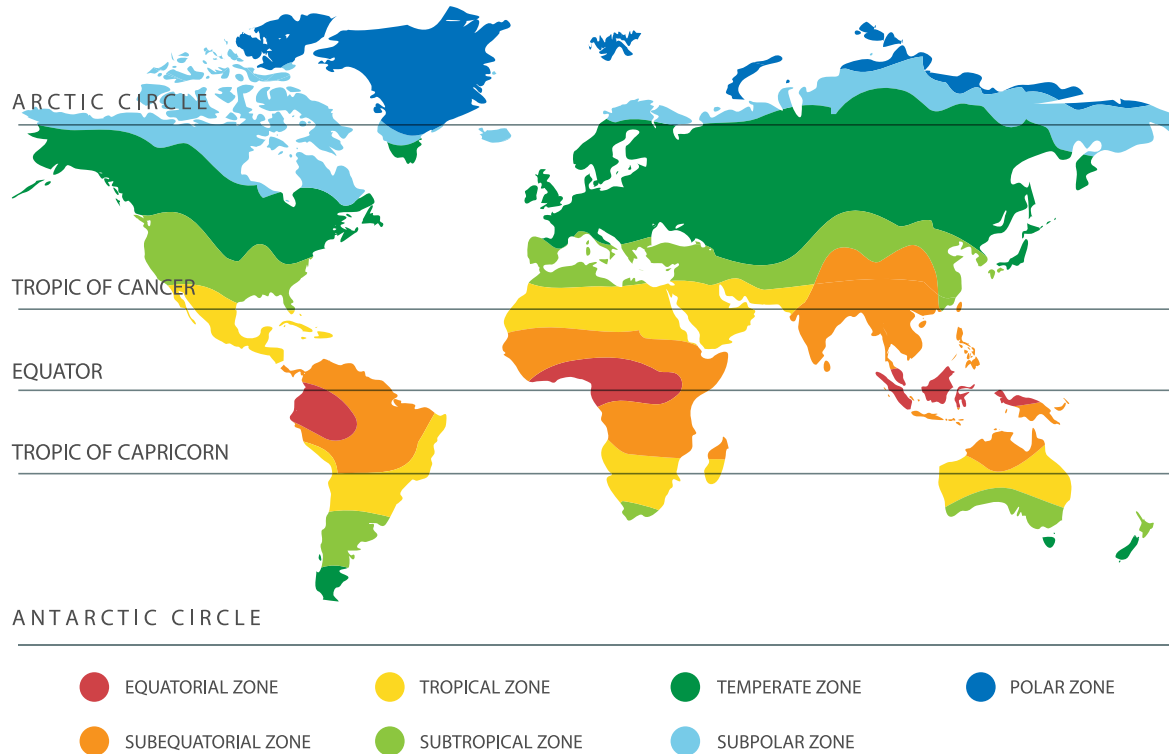
_____

_____

_____

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

_____

_____

_____

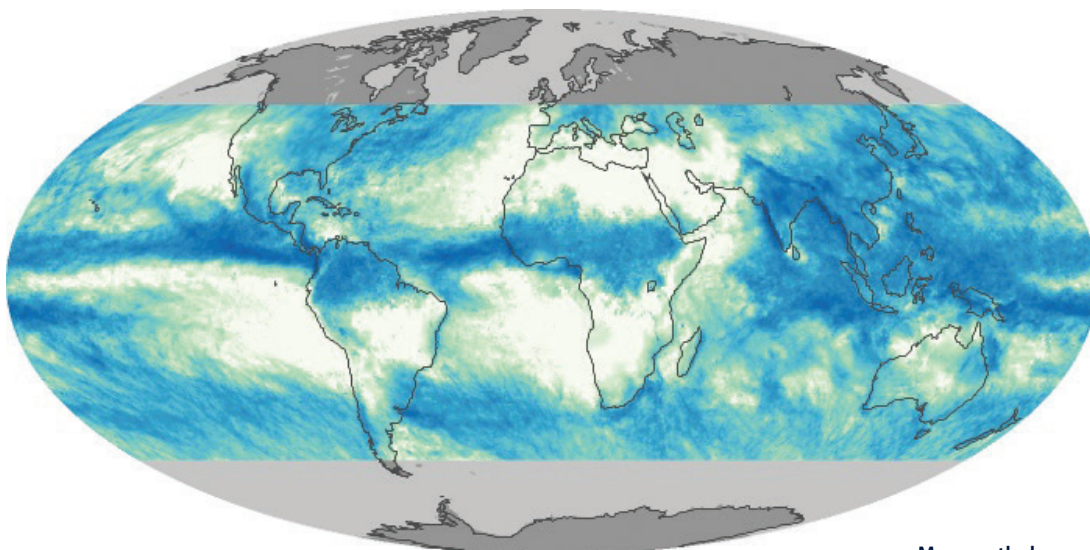Why does the climate of your region either support or not support golf courses? List at least three reasons.

_____

_____

_____

Name: _____

Climate and Weather in Golf

GRADES 3-5

ARCTIC CIRCLE

TROPIC OF CANCER

EQUATOR

TROPIC OF CAPRICORN

ANTARCTIC CIRCLE

- EQUATORIAL ZONE
- TROPICAL ZONE
- TEMPERATE ZONE
- POLAR ZONE
- SUBEQUATORIAL ZONE
- SUBTROPICAL ZONE
- SUBPOLAR ZONE
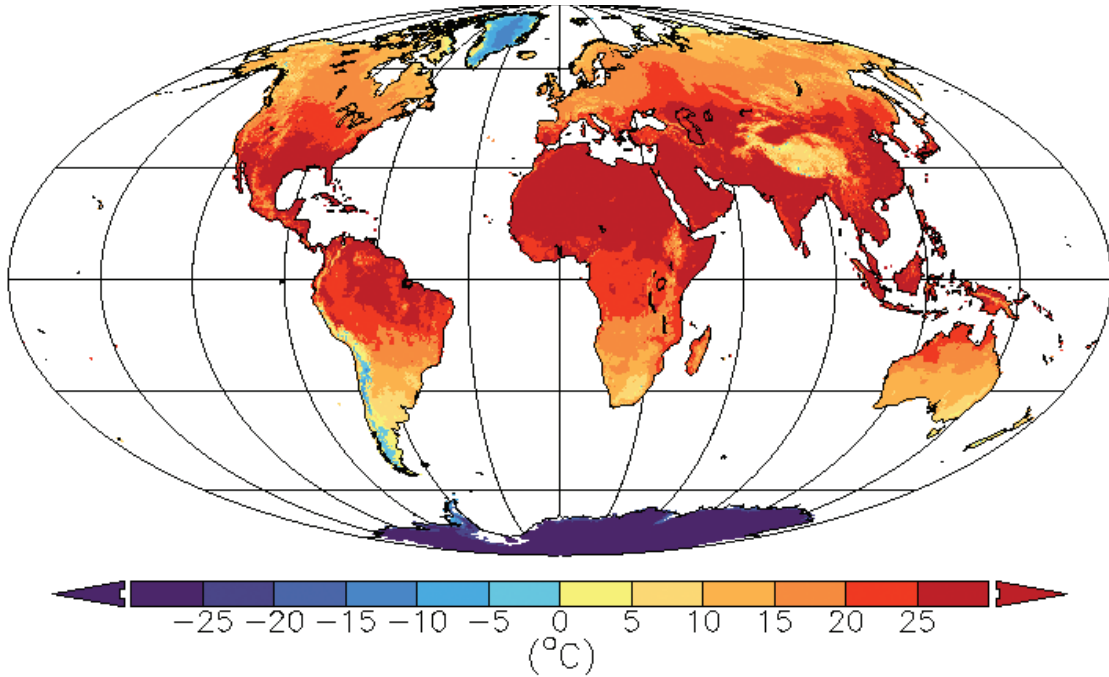
Total Rainfall - July 2016

Map: earthobservatory.nasa.gov/

Name: _____

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.

_____

_____

_____

_____

_____

_____

_____