

Name: _____ Date: _____

Student Exploration: Treasure Hunter

Vocabulary: decimal, hundredth, number line, tenth, whole number

Prior Knowledge Questions (Do these BEFORE using the Gizmo.)

1. Suppose you are standing at 300 Main St. and your friend is at 600 Main St. Name one address that would be between you and your friend.

2. Who would you guess is closer to 400 Main St., you or your friend? Why?

Gizmo Warm-up

In the *Treasure Hunter Gizmo™*, you are looking for buried treasure along a desert road. Your goal is to drive to the treasure's location as quickly as you can and dig it up.

Be careful though – you'll need to be at exactly the right location or you won't find anything!


1. First, get comfortable with your car.
 - Notice the **GPS display** on the left of the Gizmo. It shows an overhead view of your car's position.
 - Use **forward/reverse/stop** to control direction.
 - Practice shifting gears – **tens**, **ones**, **tenths**, and **hundredths** – while you drive.



Which gear drives the car the fastest? _____ The slowest? _____

2. This road has several landmarks along it. The first is a **restaurant** at mile 18.
 - Click **Back for gas** to return to mile 0 and fuel up.
 - Drive to the **restaurant** and stop. (If you go too far, use **Reverse**.)
 - Click **Dig**.

What did you find buried in front of the restaurant? _____

Activity A: Treasure hunter training	<u>Get the Gizmo ready:</u> <ul style="list-style-type: none"> Be sure you are still in Training mode. (If not, either click Exit to training or click Refresh.) 	
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Welcome to Treasure Hunter Training! In this activity you will train to be a Treasure Hunter and get ready to run missions in search of buried gold.

1. Click **Back for gas** to fuel up and restart. There is a **phone booth** along this highway at mile 43.7. Drive there and stop exactly at that location. Click **Dig**.

A. What was buried there? _____

B. Which gears did you use to get the car to mile 43.7? _____

2. Click **Return to training**. Then click **Back for gas** to fuel up and restart. There is a report of something buried at mile 64.27 (not at a landmark). Drive there, stop the car, and click **Dig**.

A. What did you find? _____

B. How long did it take you to get to mile 64.27? _____

C. Click **Return to training** and **Back for gas**, and try it again. Go for a faster time.


(Click **Dig** quickly to stop the clock!) What was your best time? _____

3. Jim, Bob, and Fred are trying to find buried treasure at mile 57. Here are their strategies:

Jim	Bob	Fred
Ones gear from 0 to 57.	Tens gear until 50. Ones gear from 50 to 57.	Tens gear until about 55. Ones gear from 55 to 57.

Who do you think will find the buried treasure most quickly? Why?

4. Describe your plan for shifting gears to get to mile 26.43 as quickly as you can.

Activity B: Treasure hunt!	<u>Get the Gizmo ready:</u> <ul style="list-style-type: none"> Click Missions to begin a mission. 	
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Welcome, Treasure Hunter. Your mission, if you choose to accept it, is to find gold buried along this desert road. Faster times (and greater challenge levels) will yield more gold. Good luck!

1. Pick a **Challenge Level**. The Gizmo tells you where the gold is buried. When you're ready, click **Start mission**. Stop the car and click **Dig** to check for gold (and to lock in your time).

A. What was your time? _____ How many gold coins did you find? _____

B. When you're done, click **Mark your map**. Zoom and pan the number line map to find the location of the gold. Place a marker there. Congratulations – the coins are yours!

2. Click **New mission**, find the buried treasure, and jot down your time. This time, though, click **Redo mission** and try it again. Can you improve your time (and find more gold)?


A. What was your best time? _____ Most gold found? _____

B. Mark your map to finish the mission.

3. Run several more missions, at different challenge levels. Keep track of your results below. (If you run out of room, continue on the back.) Feel free to try each mission several times!

Mission	Challenge level	Location (mile)	Fastest time	Coins found
A				
B				
C				
D				
E				
F				

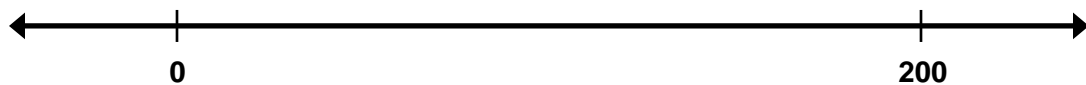
4. Suppose you were advising a brand new trainee Treasure Hunter. The trainee wants to know how to find lots of gold and avoid common mistakes. What would you say?

Activity C: Lessons learned	<u>Get the Gizmo ready:</u> <ul style="list-style-type: none"> Click Exit to training to return to training mode. (Click Refresh if necessary.) 	
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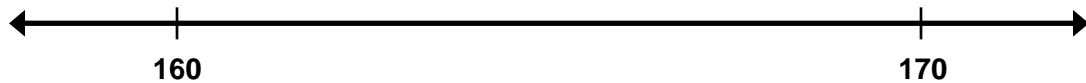
With your experience, you may be ready to be an Instructor at Treasure Hunter Training School. But first you need to qualify. Have you learned a lot about this lonely stretch of desert road?

1. Part of being a good treasure hunter is being able to find any location quickly on a map. In the Gizmo, there is an interesting rock formation at mile 162.7.

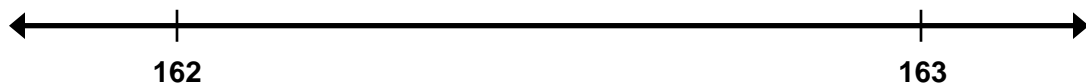
A. Below is a road map (number line) that shows 200 miles of road. Estimate and label where you think the rocks are located on this map.



B. This map shows 10 miles of the same road. Mark and label the rocks on this map.



C. Finally try it again, on this very zoomed-in map.

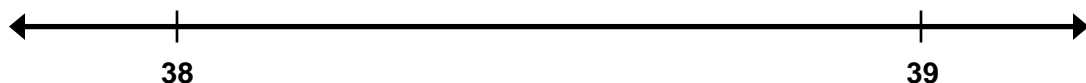


2. Three lost items are buried at three different locations: miles 38.52, 38.4, and 38.19.

A. If you started at the usual starting point (mile 0) and drove forward, which location would you come to first? Second? Third?

1st stop: mile _____ 2nd stop: mile _____ 3rd stop: mile _____

B. Estimate the locations of 38.52, 38.4, and 38.19 on this road map (number line). Label your three points clearly.



C. Check your answers by driving along the road in the Gizmo. Were you correct? (If not, fix your answers above!)