Junior Ranger Math Log

Field Notes from the Great Outdoors

Bring math along on your next hike with this Junior Ranger Math Log, exploring geometry, estimation, and bar graphs in the great outdoors!

Supplies

- Printer
- Paper
- Pencil
- Colored pencils or crayons
- Stapler (optional)

Getting Ready

- **Print** the Junior Ranger Math Log double-sided (landscape orientation, flip on short edge).
- Have your student **fold** the pages in half so the cover is on the front and back.
- **Check** that the page numbers are in order, then **staple** the booklet along the fold in 2–3 places.
- Have students **sketch and answer the questions** as they explore the outdoors.

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Field Notes:

I enjoyed _____
_____
_____
_____.

I saw the *most* _____
_____
_____.

I saw the *least* _____
_____
_____.



On my next hike, I'd like to _____
_____
_____
_____.

What I saw:

Junior Ranger Math Log

Name: _____

Date: _____

State: _____

Location: _____

_____

Weather: _____

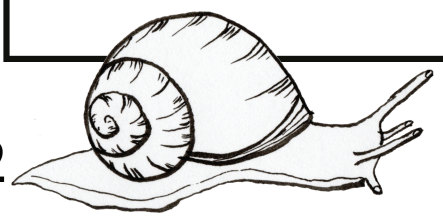
_____

Estimation and Measurement

Estimation is when you use an approximate number, usually by rounding up or down, to get an answer that is close enough.

Example: 3.27 rounds down to 3, while 7.6 rounds up to 8.

Sketch a map of your current hike (or a hike you've taken). Include the START, FINISH, any important features and landmarks, and the *approximate* distance.



Observing Fauna (animals)

Sketch a wild animal that you have seen on your hike. Label your sketch, including type of animal, legs, ears, antlers, feathers, colors, spots, tail . . .

Use your sketch to answer these questions:

1) *Approximately* how tall is the animal in feet?_____

2) *Estimate* how many of this animal you have seen on your hike._____

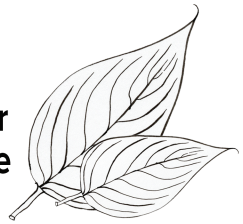
3) Why did you choose to sketch this animal?_____

_____

_____



Observing Flora (plants)



Sketch a plant that you have seen on your hike. Label your sketch, including the type of plant, leaves, berries, flowers . . .



Use your sketch to answer these questions:

1) *Approximately* how tall is the plant in feet? _____

2) *Estimate* how many of this plant you have seen on your hike. _____

3) Why did you choose to sketch this plant? _____

_____

Use the *approximate* length of your current hiking trail (or use 3 miles, 20 minutes) to answer these questions.

1) Our hiking trail is _____ miles long from START to FINISH. We hiked the first mile in _____ minutes. If we keep walking at this exact pace, how many minutes will this hike take altogether? _____

2) If we want to finish this whole hike in 60 minutes, how much time in minutes do we have to complete the remaining _____ miles? _____

3) If we take a 10 minute rest and then hike back along the same trail to the START:

a) How many miles will we have hiked altogether? _____

b) How many minutes did it take us altogether?

_____

Bonus:
There are _____ people hiking with me today. We each hiked _____ miles, so how many miles did we hike altogether as a group? (Hint: Remember to include yourself!) _____



Observing Symmetry

Symmetry means that a shape is repeated. Sometimes it is reflected across, like in a mirror, or around, like petals of a flower.

Look for some examples of *bilateral symmetry* (the same shape on both sides), like butterfly wings and leaves. Sketch and label some you find.



Look for some examples of *radial symmetry* (the same shape repeated around a circle), like flower petals and starfish. Sketch and label some you find.

Bar Graphs and Comparisons

Let's take a close look at a specific patch of grass or dirt, about 5 x 5 feet square. As you inspect what you find there, fill in the bar graph to record 4 of the things you see, such as: insects, smooth stones, different colored leaves, flowers, seedpods/pinecones . . .

Label the top of each column with the name of that object. Then fill in one thin rectangle for each of that item you find, starting at the bottom with 1.

15				
14				
13				
12				
11				
10				
9				
8				
7				
6				
5				
4				
3				
2				
1				

Use your bar graph to compare your findings.



I found the most _____ .
I found the least _____ .
I found _____ *more* _____ than _____ .
I found _____ *less* _____ than _____ .