T.O.P.S.
Team Oriented Problem Solving

Canonsburg Middle School

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Directions: Please use this paper (or scratch paper) as your rough draft and the group paper for your final copy.

Arkansas Cities

According to a map of Arkansas, a number of roads connect the towns as shown below:

- The road between Malvern and Benton is 23 miles long.
- The road between Benton and Pine Bluff is 62 miles long.
- The road between Malvern and Sheridan is 28 miles long.
- The road from Sheridan to Pine Bluff is 22 miles long.
- Arkadelphia is connected to two towns: It is 12 miles from Gurden and 21 miles from Sheridan.
- Fordyce has three roads to the following towns: 45 miles to Pine Bluff, 39 miles to Sheridan, and 27 miles to Camden.
- The road from Gurden to Camden is 38 miles.

Unfortunately, the road from Fordyce to Sheridan is closed due to weather.

Find the shortest route between each pair of towns listed below and answer these two questions: How long is each route? What city or cities would you pass through on your route?

1) Malvern and Pine Bluff
2) Camden and Pine Bluff
3) Benton and Arkadelphia
4) Fordyce and Malvern
5) Benton and Camden
Lemonade Tea? or Tea Lemonade?

You are making lemonade and iced tea to bring to a fall party. You decide to mix the two together to make an Arnold Palmer!

You have one large pitcher containing 1 quart of lemonade and a second large pitcher containing 1 quart of iced tea. You pour 1 pint of lemonade into the iced tea and thoroughly mix it. Then you pour 1 pint of the mixture back into the lemonade pitcher.

How much of the iced tea is now in the original lemonade? And how much of the lemonade is now in the original iced tea?

Note: In one quart there are 2 pints.

Choose one of our problem solving methods to use: Drawing a Diagram, Logic, Eliminating Possibilities, Guess and Check, or Physical Representations to solve this problem with your group. Please use this paper as your rough draft and the group paper for your final copy. Be sure to show all of your work and explain your steps in order to receive full credit.
Circle Design - 1

_Sphero Lightening Lab_

As a class, we used a variable (heading) to code Sphero to roll in a circle going clockwise

_Your Challenge is to…_

_Have the Sphero roll in a circle counterclockwise_

You will be able to tell when this is completed because the Sphero will roll in a counterclockwise circle this time!

_Your recorder should write your program here:_

____________________: Reader
____________________: Recorder
____________________: Coder
Circle Design - 2

Sphero Lightening Lab

You have successfully coded your Sphero to in a counterclockwise circle.

**You should now switch jobs with your group member.

Please change your code back to making a clockwise circle. See below.

_______________: Reader
_______________: Recorder
_______________: Coder

Your Challenge is to...

Have the Sphero light up a certain color for half of the circle and another color for the other half of the circle.

You will need to use a “if, then” command which is under the controls tab.

Use the “set color” command which is under the actions tab. (hints are on the back, use them if you need them!!)
Hints: Half the circle is from 0 degrees to 180 degrees
When the heading value is "greater than" 180 set the Sphero to be a certain color.

Your recorder should write your program on the here:
Circle Design - 3

Sphero Lightening Lab

You have successfully coded your Sphero to change colors halfway through the circle.

**You should now switch jobs with you group member.

Your Challenge is to...

Have the Sphero create an “S” shaped curve. As shown below:

You will need to use a “loop until” command inside of the loop forever command.

“Loop until” works similar to the “if then” command. (In the box that says “true” place the code saying how long that loop should continue. In other words, loop until ____________ is true, place the code in the blank)

You may delete the color commands if you would like.

Hint: see if you and your group members can look at the picture above and list the heading value that would make the Sphero roll that direction!

Write your code on the back!!