

Name: _____

Class: _____

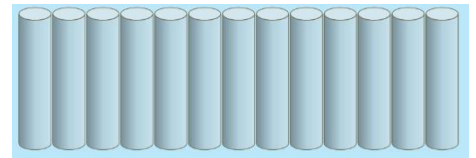
Date: _____

Plinko Probability

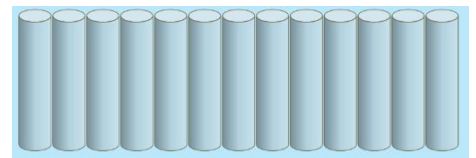
Start on the INTRO tab.

1. Pretend you are playing Plinko on The Price is Right. How would you choose which bin you think the ball would land in?

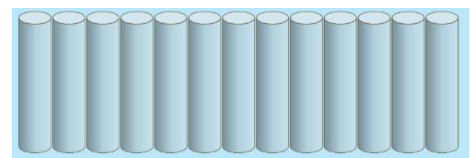
2. Send 10 balls through the Plinko Machine. Draw where they land. Did they all land where you expected?



3. Clear the screen and send another 10 through the machine. Again, draw where they land. Was the picture identical to the one above? Why or why not?



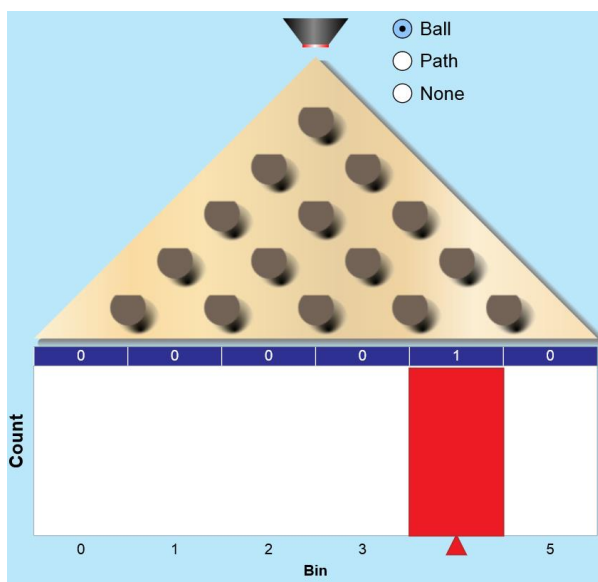
4. Now try 100 balls. Erase and retry several times. What do you notice? Sketch the pattern you see.



5. Where is a ball more likely to land? Less likely?

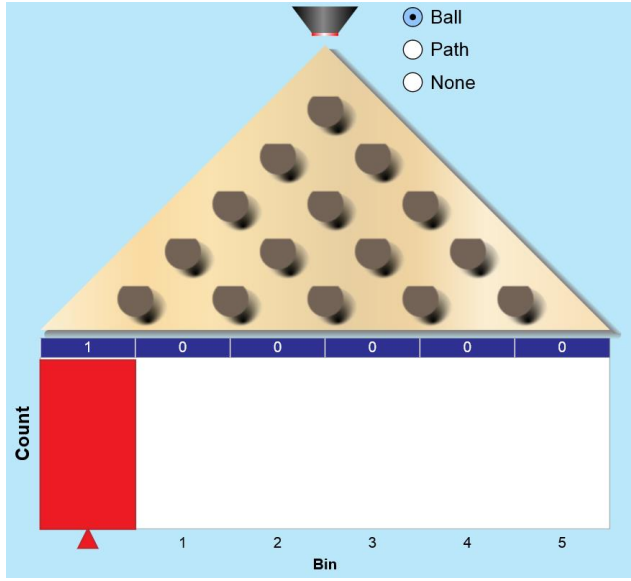
6. How might you go about figuring out the probability of landing in a particular bin?

7. When I played Plinko, my ball landed in the bin shown below. Draw all of the possible paths to land in that bin. (You can see an example of what I mean by “paths” by clicking on the lab screen, and then on Path.)



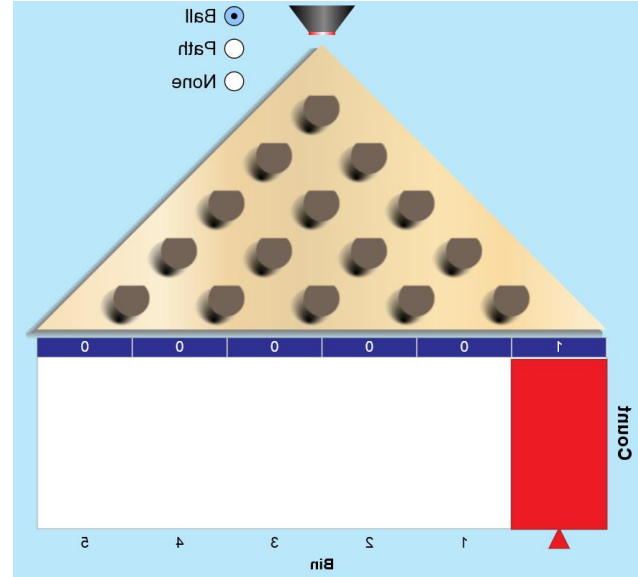
How many paths did you find?

8. Try this again. Look at the next picture and draw the possible paths to get to this bin.



How many paths did you find?


9. Sam just noticed that his worksheet was copied backwards. So instead of drawing lines to bin 0, he drew the paths to bin 5. Will he have to start again? Why or why not?



10. For each pin, what is the probability that the ball will move to the right?
What is the probability that it will move to the left?

11. Talk to your partner about what you learned. Is it equally possible to land in all bins? If not, how would we determine the probability?

12. Work with your partner to come up with your prediction for the probability that a ball will land in bins 0 through 5.

13. Once you have your prediction, send a continuous number of balls through the Plinko machine. You can click the  button to see the actual probabilities. How close were your predictions?

14. What type of probability distributions does Plinko follow?

15. Using the equation (of Ti-84) associated with the probability distribution you mentioned in #14 to calculate the probability of $X \leq 5$.

16. What is the percent difference between your answers in #13 and #15?

Percent difference = Absolute Value of $((Y-X)/X) * 100$

Where X is the answer to #13 and Y is the answer to #15.

