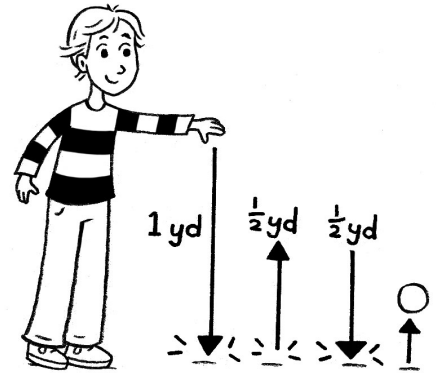


**D The Ball Bounce**

Jessie and John were bouncing a ball on the school playground. John noticed that each time the ball hit the ground it bounced back up  $\frac{1}{2}$  the distance of the drop. When he dropped the ball from a height of 1 yard, it hit the ground and bounced up  $\frac{1}{2}$  yard. John and Jessie dropped the ball from a height of 1 yard and let the ball keep bouncing until it stops.



Answer the following questions on a separate piece of paper.

- A. How far will the ball have traveled, up and down, when it hits the ground the fourth time? Write about how you found your answer. Explain all your strategies.
- B. Look for patterns. Describe any that you see.
- C. How far will the ball have traveled, up and down, when it hits the ground for the sixth time?
- D. Show or tell a way to find the distance the ball will have traveled, up and down, after any number of hits.
- E. Will the ball ever bounce a total distance of 3 yards? Explain your thinking.