

Hole-in-One!



There are many sports/games that involve an understanding of angles and a law of physics that states the angle of incidence is congruent to the angle of reflection. Games such as billiards, pool, and miniature golf are played with these understandings.

Suppose you are playing a game of miniature golf and want to score a “hole-in-one”. The ball and cup are shown on a diagram of the course on the Activity Sheet *Hole in One!*

1. Use the Activity Sheet *Hole in One!* to show how you would make a “hole-in-one” with three bounces. Write a justification for your solution with supporting definitions, axioms, postulates, and/or theorems of geometry.
2. Explain why the angle of incidence is congruent to the angle of reflection for any hit along a wall.
3. What is the measure of the angle of reflection needed to make a “hole-in-one” on the third bounce? How did you determine this?

