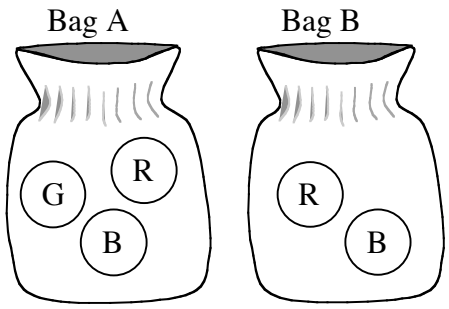
Marble Game

This problem gives you the chance to:
- use probability in an everyday situation

Linda has designed a marble game.



1. Bag A contains 3 marbles –
   one red, one blue and one green.

   Bag B contains 2 marbles –
   one red and one blue.

   To play this game, a player draws one marble from each bag without looking.
   If the two marbles match (are the same color), the player wins a prize.

   What is the theoretical probability of winning a prize at a single try? _____
   Show your work.

2. Here are the results for the first 30 games.

Win (Match)	No Win (No Match)
𝍸 |||	𝍸 𝍸 𝍸 𝍸 |

   How do the results in this table and the theoretical probability you found compare?

   _____

   Explain any differences.

   _____

   _____

Grade 8 Marble Game

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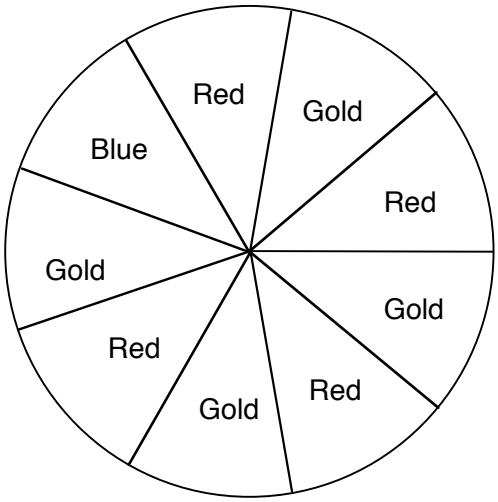
3. Linda has designed a second game.

The spinner has nine equal sections.

To play the game, a player spins the spinner.

If the spinner lands on a Gold section,
the player wins a prize.



Does the player have a better chance of winning with the bag game or the spinner game?

_____

Explain your reasoning.

_____

_____

_____

7

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Marble Game	Rubric	
The core elements of performance required by this task are: • listed here Based on these, credit for specific aspects of performance should be assigned as follows	points	section points
1. Gives correct answer: $\frac{2}{6} = \frac{1}{3}$ Lists all possibilities: RR, RB, BR, BB, GR, GB p(RR or BB) = 2/6 or 1/3 or Shows work such as: Probability $R \cap R = \frac{1}{3} \times \frac{1}{2}$ Probability $B \cap B = \frac{1}{3} \times \frac{1}{2}$ Probability both same color = $\frac{1}{6} + \frac{1}{6}$	1 1 1 or 1 1	3
2. **These results are quite close**; but the number of trials is not large enough to give an accurate estimate. **or** Explains that from these results the experimental probability $= \frac{9}{30} = \frac{3}{10} = 0.3$ The theoretical probability = 0.33 recurring	1 1 1	2
3. Gives correct answer: t**he spinner game** Shows work such as: the probability of winning on the spinner game is 4/9 = 0.44 recurring	1 1	2
Total Points		**7**

Grade 8
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