

## Grade 6 Mathematics Assessment Analysis – SOL Alignment and Cognitive Demand

### STANDARD 6.16

The student will

- a) compare and contrast dependent and independent events; and
  - b) determine probabilities for dependent and independent events.
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1. A box contains 12 orange marbles, and 8 purple marbles. If you pick one marble, don't replace it, and then pick another marble, what is the probability that both will be orange?
  
2. A sandwich shop offers the following meats: turkey, ham, and roast beef, the following cheeses: American and provolone and the following breads: Wheat, white, rye. What are all of the possible sandwich combinations that can be made?
  
3. A jar contains the following pens that are all the same size and shape.
  - 4 red pens
  - 3 green pens
  - 5 blue pens
  - 4 black pens

One pen is randomly selected from the jar. After replacing the first pen, a second pen is randomly selected. Randomly selecting the second pen is an example of --

  - A. dependent event
  - B. independent event
  
4. A spinner has four equal section labeled W, X, Y, and Z. A fair coin has faces labeled heads and tails. Michael will spin the arrow of the spinner and flip the coin one time each. What is the probability the arrow will land on the section labeled Z and the coin will land with heads face-up?

5. Laura has 2 bags of tiles that are all the same shape and size.
- Bag A has 1 blue tile and 3 green tiles.
  - Bag B has 2 yellow tiles and 4 black tiles.

Using this information, create a problem that describes a dependent event and an independent event in the space provided.

Write a dependent event problem:	Write an independent event problem:

6. A jar contains 2 red and 3 blue gumballs. Nikki randomly chooses one gumball from the jar and keeps it, and then Tom chooses a gumball. What is the probability that Nikki chooses a red gumball and then Tom chooses a blue gumball?
7. A deck of cards has 5 yellow, 3 blue, and 4 green. You randomly pick 3 cards from the deck. Cards are returned to the deck after they are picked. What is the probability of choosing 3 blue cards in a row?
8. Carly is playing a game. She is using a spinner that is divided into eight equal parts each numbered 1 through 8. She has two spins left. She will win if she lands on a 4 and then lands on a 5. What is the probability that she will win the game?

