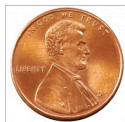Name _____

Date _____ Period _____

Independent Events

If the outcome of an event has no effect on the outcome of another, those two events are said to be independent events.
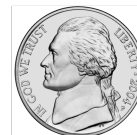
Flipping a penny   Flipping a nickel

Heads = $\dfrac{1}{2}$ Heads = $\dfrac{1}{2}$

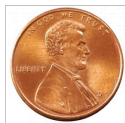Tails = $\dfrac{1}{2}$ Tails = $\dfrac{1}{2}$

The outcome of flipping a penny has no effect on the outcome of flipping a nickel.
The outcome of flipping a nickel has no effect on the outcome of flipping a penny.
Flipping a penny and flipping a nickel are considered to be independent events.

Independent Events

To find the probability of two or more independent events occurring, multiply the probabilities of the individual events together.
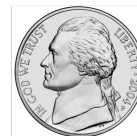
Flipping a penny   Flipping a nickel

Heads = $\dfrac{1}{2}$ Heads = $\dfrac{1}{2}$

Tails = $\dfrac{1}{2}$ Tails = $\dfrac{1}{2}$
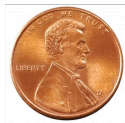
Probability of flipping a heads with a penny and a tail with a nickel.

Independent Events

Probability of flipping a tail with a penny and rolling a 3 with a die.

Flipping a penny

Heads = $\frac{1}{2}$

Tails = $\frac{1}{2}$

Rolling a die

(P)1 = $\frac{1}{6}$ (P)2 = $\frac{1}{6}$

(P)3 = $\frac{1}{6}$ (P)4 = $\frac{1}{6}$

(P)5 = $\frac{1}{6}$ (P)6 = $\frac{1}{6}$

Independent Events

Probability of picking a diamond from a deck of cards and <u>not</u> rolling a 4 with a die.

Picking a diamond

♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦
A 2 3 4 5 6 7 8 9 10 J Q K

♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥
A 2 3 4 5 6 7 8 9 10 J Q K

♣ ♣ ♣ ♣ ♣ ♣ ♣ ♣ ♣ ♣ ♣ ♣ ♣
A 2 3 4 5 6 7 8 9 10 J Q K

♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠
A 2 3 4 5 6 7 8 9 10 J Q K

Rolling a die

(P)1 = $\frac{1}{6}$ (P)2 = $\frac{1}{6}$

(P)3 = $\frac{1}{6}$ (P)4 = $\frac{1}{6}$

(P)5 = $\frac{1}{6}$ (P)6 = $\frac{1}{6}$

Independent Events

If the outcome of an event has no effect on the outcome of another, those two events are said to be independent events.

To find the probability of two or more independent events occurring, multiply the probabilities of the individual events together.