No 5 for 5 today - get started on the lesson and I will be back - another meeting :)

Name: _____ Hour: _____ Date: _____

Lesson 5.2: Day 1: Odds or evens, who will win?

We're going to play a game to answer this question. You and your partner must decide who will be "Odds" and who will be "Evens". Then you will roll two dice and **multiply** the numbers. If the product is odd, the odds person wins and vice versa for evens. Play 20 times, keeping track of how many wins each person has.

1. How many times did the odds win? 6/20 5/20

   Write this as a fraction out of 20 and turn it to a percentage. 11/40 = 27.5% experimental

Maybe the odds just had a run of bad luck. Let's see how the rest of the class did with odds. Write the number of odds wins for your group in the table on the board.

2. Find the total percent of rolls that were odd products for the whole class. _____

   How does this compare to your group's results?

   close to 25%: only odd·odd gives you odd

   One group less

   One group about the same

   3 Law of Large #'s

3. To determine the true probability of rolling an odd product, we should list out all possible products that we could get. Complete the table below to show all possible products (multiply).

4. Use your table to find the probability of rolling an odd product. $\frac{9}{36} = \frac{1}{4} = 0.25$

5. Which was closer to the percentage you found in #4, your group data or the classroom data? Why do you think that is?

   Class data b/c there are more rolls. Long term predictable w/ prob

	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

6. Use the table to find the probability of rolling each of the following products:

   a) 4 or a 5 — OR — $\frac{3}{36} + \frac{2}{36} = \frac{5}{36}$

   b) Number besides 6 — Complement — $1 - \frac{4}{36} = \frac{32}{36}$

   c) Number from 1 to 36 — Prob must add to 1 → inclusive — 1

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Name: _____ Hour: _____ Date: _____

Lesson 5.2 Day 1– Basic Probability Rules

Important ideas:

Prob model – list showing all possible outcomes & their probs
- Prob must add to 1
- each prob must be b/t 0 & 1

Complement: Prob of an event not happening $P(A^C) = 1 - P(A)$

Mutually Exclusive – Events cannot occur together

General Addition Rule

$P(A \text{ OR } B) = P(A) + P(B)$

$P(A \cup B)$

Check Your Understanding

Suppose you tear open the corner of a bag of M&M'S® Milk Chocolate Candies, pour one candy into your hand, and observe the color. According to Mars, Inc., the maker of M&M'S, the probability model for a bag from its Cleveland factory is:

Color	Blue	Orange	Green	Yellow	Red	Brown
Probability	0.207	0.205	0.198	0.135	0.131	0.124

(a) Explain why this is a valid probability model.

Probabilities add to 1 Each prob b/t 0 & 1

(b) Explain why events Red and Blue are mutually exclusive

An M & M cannot be Red & Blue at the same time

For each of the following write the event using proper notation and find the probability:

(c) Find the probability that you don't get a blue M&M.

$P(Bl^C) = 1 - 0.207 = 0.793$

(d) What's the probability that you get an orange or a brown M&M?

$P(O \cup Br) = P(O) + P(Br) = 0.205 + 0.124 = 0.329$

(e) What's the probability that don't get a red or a green?

$P(R \cup G)^C = P(R^C \cap G^C)$

$1 - 0.131 - 0.198 = 0.671$

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