Date _____

1.4 Heads, Heads, Heads

Focus: experimental probability, number sense

Chapter 1

Warm Up

1. What is the theoretical probability of flipping a coin and getting tails?	**2.** If you flipped a coin 40 times, how many tails would you expect to get?
3. A weather forecast states that there is a 30% chance of rain. Is it likely or not likely to rain?	**4.** Write $\frac{3}{4}$ as a decimal and as a percent. Decimal: _____ Percent: _____
5. What is the theoretical probability of picking a heart from a standard deck of cards? Write your answer as a fraction and a percent. Fraction: _____ Percent: _____	**6.** You flip a coin 25 times and get 8 heads. What is the experimental probability of getting heads? Write your answer as a fraction and a percent. Fraction: _____ Percent: _____

Flipping Coins

- In this activity, you will flip 3 coins at the same time.
- Getting 3 heads is called a "successful" result.
- Any other result is called "unsuccessful."
- You will flip the set of 3 coins exactly 40 times.
- The 40 flips are a **sample**. A sample is a small group of results taken from a larger group. A sample is easy to analyse. You could flip the coins 8 million times. That would be a much larger sample.

Go to pages 1–2 to write the definition for **sample** in your own words.

1. a) You are going to flip 3 coins 40 times. How many successful results do you expect? _____

b) Explain your answer to part a).

_____

_____

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2. a) Flip all 3 coins *exactly* 40 times. Record your results in the table.

	Successful (Got 3 heads)	Unsuccessful (Did not get 3 heads)
Tally		
Total		

b) How many successful results did you get? _____

Show this as a fraction of the total sample. _____

c) State the number of successful results as a percent. _____

3. In the chart below, list or draw all of the possible outcomes for flipping 3 coins at once.

First Coin	Second Coin	Third Coin

4. a) What is the theoretical probability of a successful result? Show your answer as a fraction and a percent.

b) What is the theoretical probability of an unsuccessful result? Show your answer as a fraction and a percent.

5. a) Record the individual results of the class from #2a) in the table. Add the class results for "Successful" and "Unsuccessful."

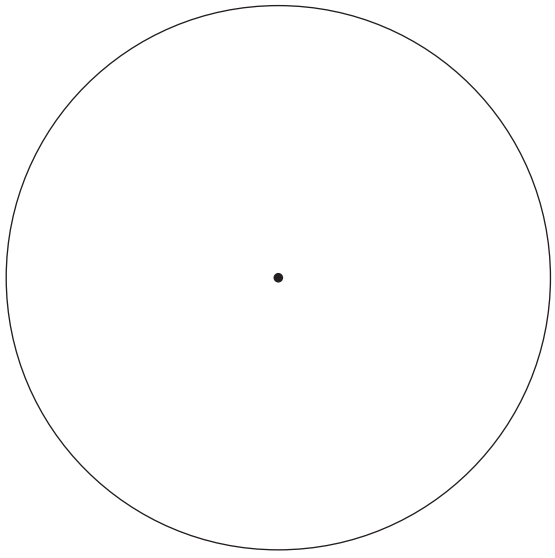
	Successful					Unsuccessful				
Individual Results										
Total										

b) How many flips are in this sample?

_____ students × 40 flips each = _____ flips

c) Calculate the overall percent of successful results.

d) Create a circle graph showing the results from part a).
- Estimate the size of each fraction of the circle.
- Include a title.
- Label each sector.



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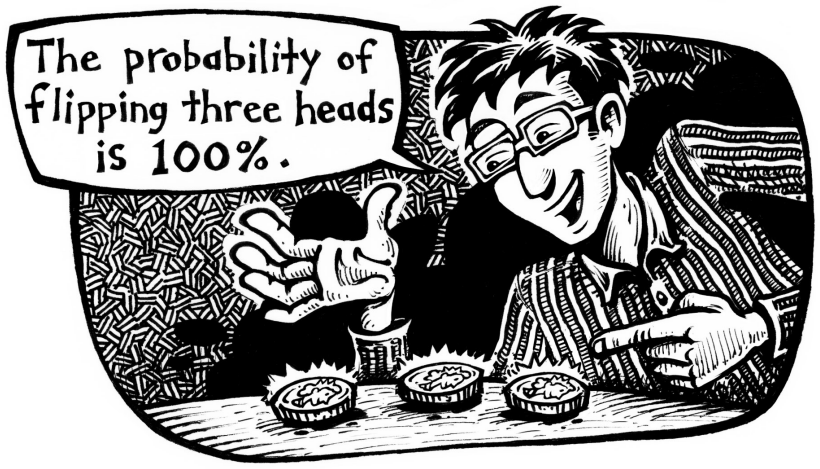
☑ Check Your Understanding

1.



a) The cartoon shows the results of the boy's first flip.

Do you agree with his comment? YES _____ NO _____

b) Explain your answer to part a). Use the term sample in your explanation.

_____

2. a) Which class member had the greatest number of successful results in the sample in #2? _____

b) What was the percent of successful flips? _____

3. a) Which class member had the lowest percent of successful results in #2? _____

b) What was the percent of successful flips? _____

4. How do you think sample size relates to theoretical probability?

_____

_____

5. If you flipped 3 coins 8 million times, how many successful results would you expect to get?

6. Explain your answer to #5. _____

_____