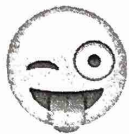
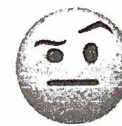


Name: \_\_\_\_\_ Hour: \_\_\_\_\_ Date: \_\_\_\_\_



## Can You Taco Tongue and Evil Eyebrow?



Some people believe that the ability to taco tongue and evil eyebrow is something that you are born with. Is this true? Are the two abilities somehow related?

1. Collect class data to fill in the following two-way table.

		Evil Eyebrow			Totals
		No	Sort of	Yes	
Taco Tongue	Yes	5	8	7	20
	No	7	2	1	10
Totals		12	10	8	30

2. Suppose that we randomly choose a student from class. Find the following probabilities.

$$P(\text{No Evil Eyebrow}) = \frac{12}{30}$$

$$P(\text{Sort of Evil Eyebrow}) = \frac{10}{30}$$

$$P(\text{No Evil Eyebrow OR Sort of Evil Eyebrow}) = \frac{12}{30} + \frac{10}{30} = \frac{22}{30}$$

*Mutually Exclusive*

3. Suppose that we randomly choose a student from class. Find the following probabilities.

$$P(\text{Yes Taco Tongue}) = \frac{20}{30}$$

$$P(\text{Yes Evil Eyebrow}) = \frac{8}{30}$$

$$P(\text{Yes Taco Tongue OR Yes Evil Eyebrow}) = \frac{20}{30} + \frac{8}{30} = \frac{28}{30} - \frac{7}{30} = \frac{21}{30}$$

*Not mutually exclusive*

$P(A) + P(B) - P(A \text{ and } B) = P(A \text{ or } B)$

4. Suppose that we randomly choose a student from class. Find the following probabilities.

$$P(\text{Yes Evil Eyebrow}) = \frac{8}{30}$$

$$P(\text{Yes Evil Eyebrow, given the person is Yes Taco Tongue}) = \frac{7}{20}$$

$$P(\text{Yes Evil Eyebrow, given the person is No Taco Tongue}) = \frac{1}{10}$$

*Conditional Probability*

5. What do your results from #4 tell you about the ability to Taco Tongue and the ability to Evil Eyebrow?

If a person can do the Taco Tongue, they are more likely to be able to Evil Eyebrow than if they couldn't Taco Tongue. +