NAME: _____

# Thinking in Hundreds

An Introduction to Percent

Behavioral Ecologist Charles Brown and his colleagues study the behavior of cliff swallows. When they looked at the swallows' search for food (foraging behavior), they only followed the birds on days with less than 50% cloud cover.



**Explore:**

- What does "50% cloud cover" tell you about the sky? What kinds of days did Brown and his crew choose to observe cliff swallows' foraging behavior?
- On what kinds of days did Brown and his colleagues find something else to do?
- Look out the window or take a few minutes outside. How would you describe the cloud cover where you are today?

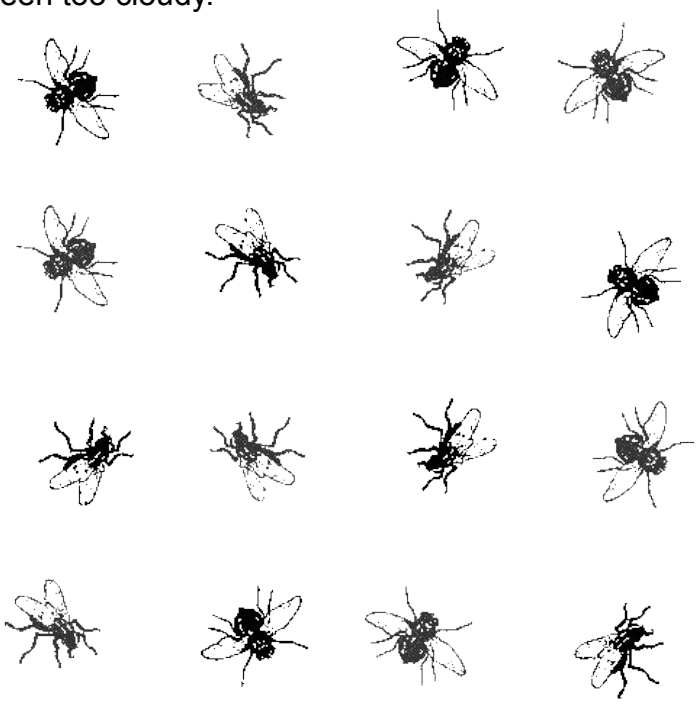
**Apply:** We have many ways of describing "how much of" something — we can use a fraction or a decimal, for instance.

50% is _____ (as a fraction) and _____ (as a decimal).

100% means "the whole thing" and stands for the number one. Percent means "out of 100." It tells us what piece of 100 equal parts something is. Fill out the table to better understand the relationship between percents, fractions, and decimals.

| Day | Cloud Cover Percent | Fraction (hundredths) | Fraction (simplest terms) | Decimal |
|---|---|---|---|---|
| A | | 50/100 | 1/2 | |
| B | 25% | | | |
| C | 10% | | | |
| D | | | | .02 |
| E | | | 9/10 | .90 |
| F | | 75/100 | | .75 |

If Brown and his colleagues checked the weather and found that the cloud cover was each of the percentages above, would they have gone out to watch cliff swallows looking for food? Put a "YES" to the left of each row if they would have gone out and a "NO" to the left of each row if it would have been too cloudy.



**Practice:**

1. When foraging in bad weather, cliff swallows use a "squeak call" to tell each other where they've found a swarm of bugs. On which days listed in the table (A-F) might the swallows who found swarms have squeaked?
2. In two different decades, Brown and the other scientists divided the number of cliff swallows they saw foraging for food by the number of birds living in each colony to see what percentage of birds were looking for food.
    a. Between 1984 and 1988, about 33% of the birds at the Whitetail colony were out foraging when Brown was watching them. What fraction of the birds were foraging?
    b. Between 2016 and 2022, about 7% of the Whitetail cliff swallows were out foraging. Use a decimal to describe the same number.
    c. Which years saw more of the Whitetail colony cliff swallows out, looking for food?
    d. Why might the percentage have changed over time? Imagine one or two possible answers and share your ideas.
    e. What question(s) would you ask Charles Brown about this change?

**Extra Challenge**:

1. Between 1984 and 1988, the Whitetail colony of cliff swallows had 573 birds in it. About how many of them went out foraging at a time? (What's 33% of 573? Hint: "of" usually means…multiply!)
2. Between 2016 and 2022, the Whitetail colony had 601 birds in it. If only 7% of them were out catching bugs, about how many birds was that?