

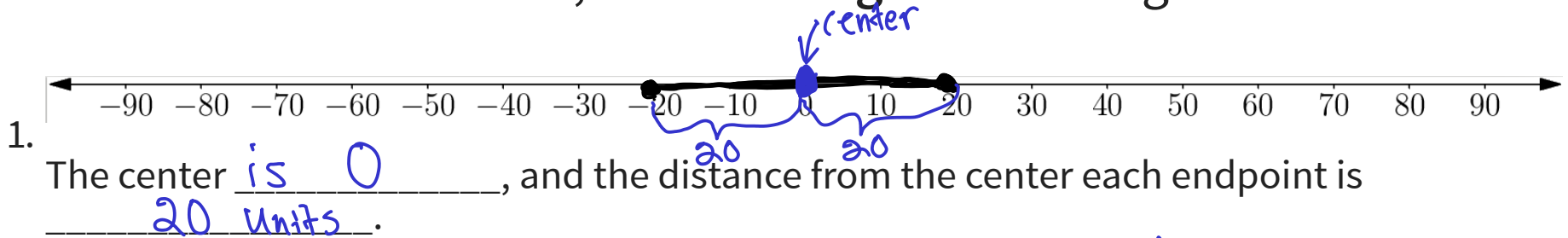
WHERE DOES IT LIVE?

LEARNING GOAL

1. I can use **absolute value inequalities** to describe where a species lives.

KEY IDEA

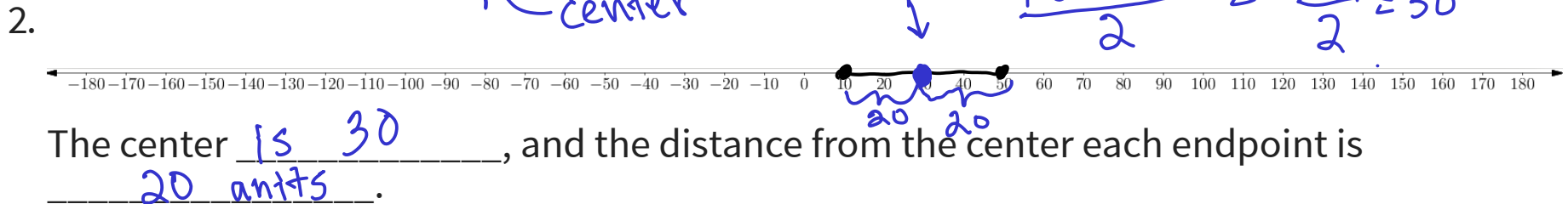
We can describe where a species lives by describing the **center**, the **width**, and the **height** of its range.



$$|x - 0| \leq 20$$

Handwritten annotations: "center" points to 0, "distance to endpoint" points to 20.

$$\frac{10 + 50}{2} = \frac{60}{2} = 30$$



$$|x - 30| \leq 20$$

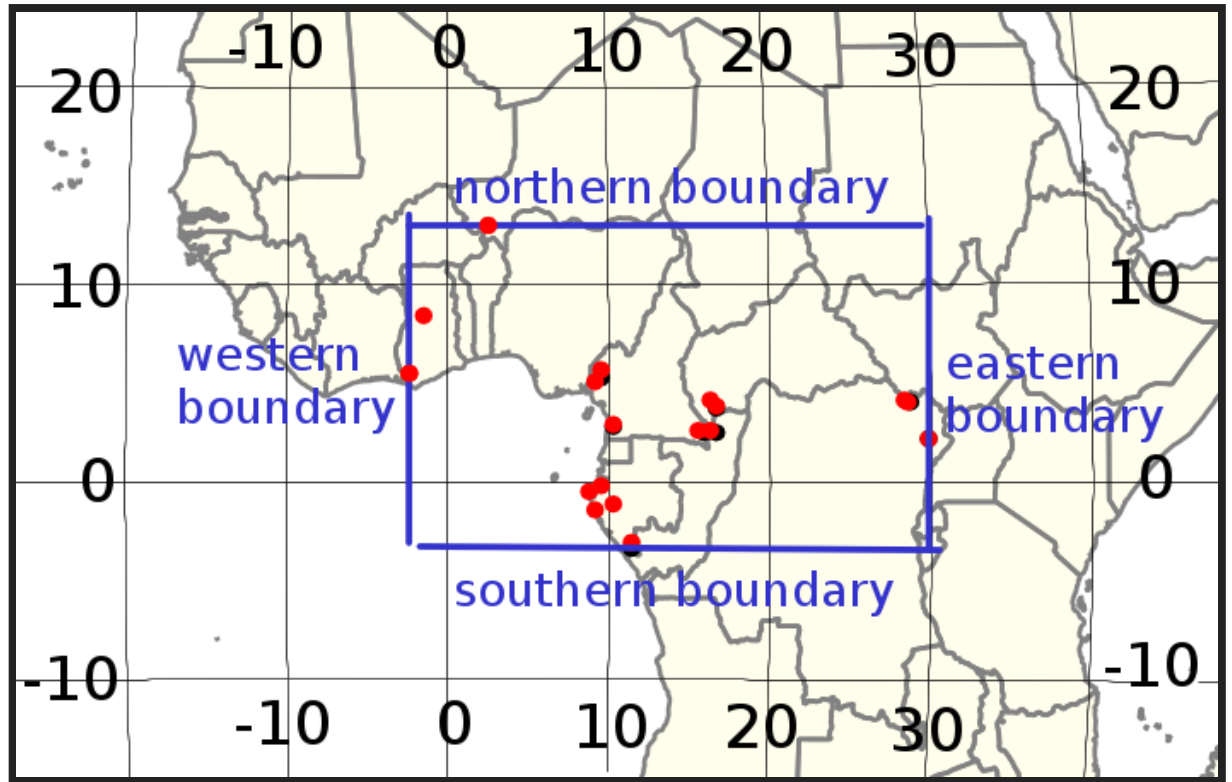
Handwritten annotations: "center" points to 30, "distance to endpoint from the center" points to 20.

TASK 1

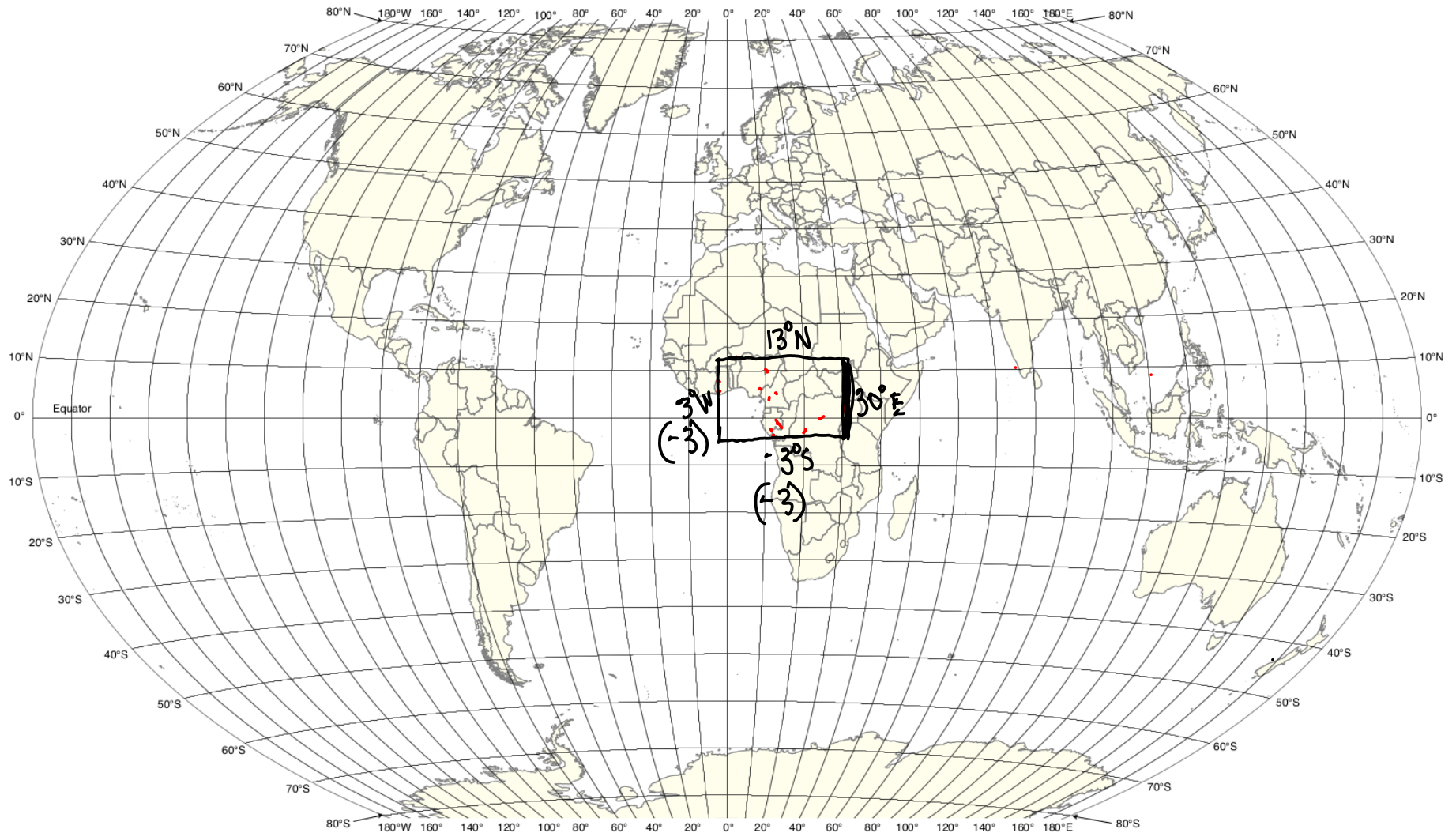
Draw north, south, east, and west boundaries around where your species lives.

THINGS TO REMEMBER:

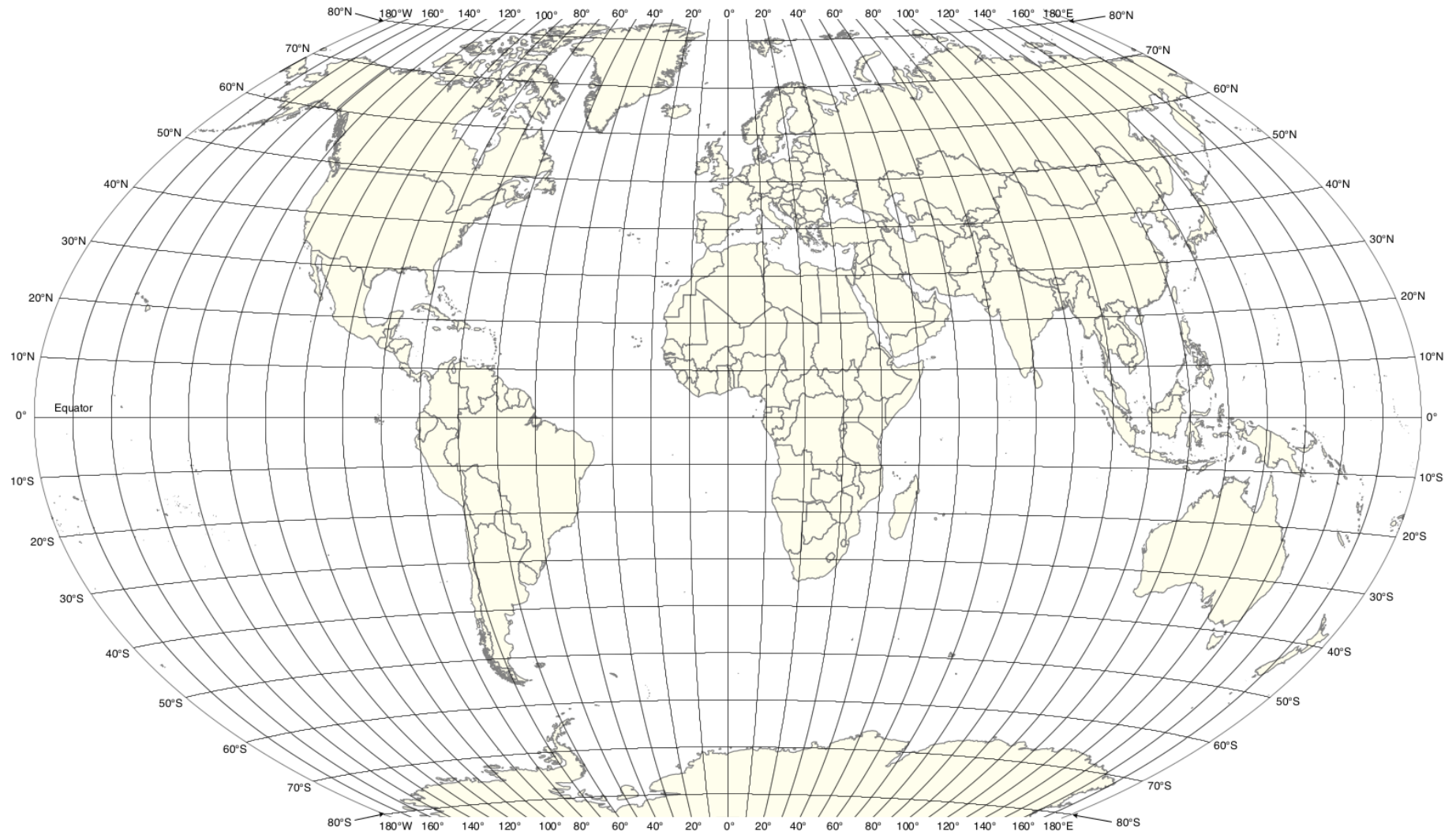
1. North and south boundaries will lie along lines of latitude (horizontal lines)
2. East and west boundaries will lie along lines of longitude (vertical lines).
3. Each line must pass through the top, bottom, leftmost, or rightmost point.



Draw north, south, east, and west boundaries around where your species lives.



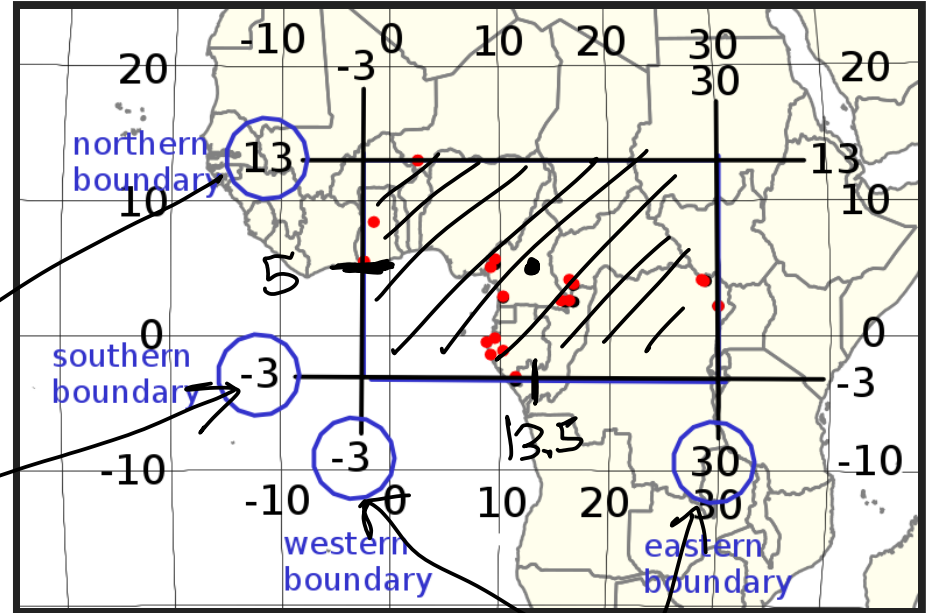
Draw north, south, east, and west boundaries around where your species lives, or copy your work from yesterday onto the next slide.



TASK 2

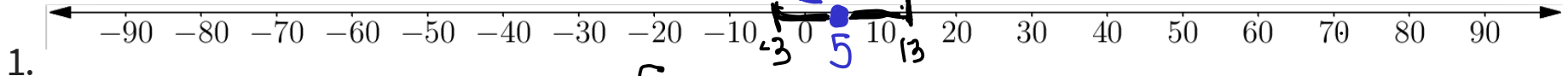
Describe the center, the height, and the width of your species range.

latitudes



$$\text{center} \quad \frac{-3 + 13}{2} = \frac{10}{2} = 5$$

longitudes



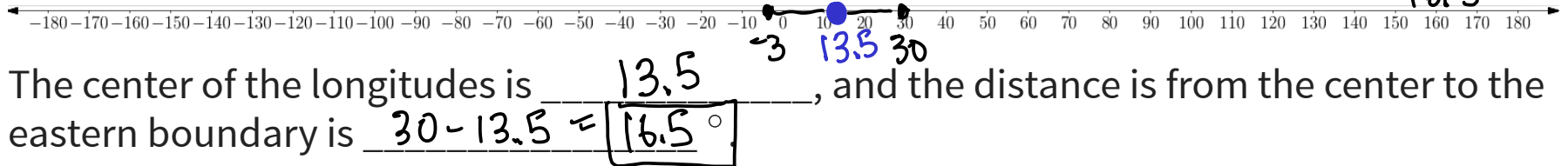
1.

The center of the latitudes is 5, and the distance from the center to the northern boundary is $13 - 5 = 8$.

2.

$$\text{center} \quad \frac{-3 + 30}{2} = \frac{27}{2} = 13.5$$

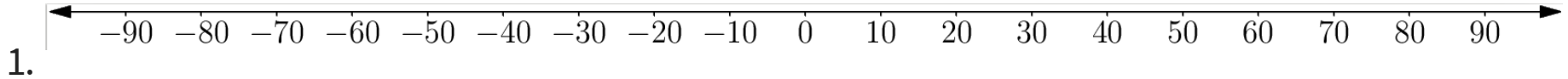
$$\begin{array}{r} 30 \\ - 13.5 \\ \hline 16.5 \end{array}$$



The center of the longitudes is 13.5, and the distance is from the center to the eastern boundary is $30 - 13.5 = 16.5$.

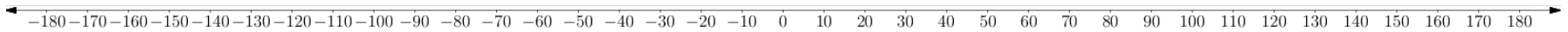
TASK 2

Describe the center, the height, and the width of your species range.



The center of the latitudes is _____, and the distance from the center to the northern boundary is _____°.

2.



The center of the longitudes is _____, and the distance is from the center to the eastern boundary is _____°.

TASK 3

Translate each of your sentences from task 2 into an **absolute value** inequality.

SENTENCES FROM TASK 2

1. The **center** of the latitudes is 5, and the distance from the center to the northern boundary is 8 °.
2. The **center** of the longitudes is 13.5, and the distance from the center to the eastern boundary is 16.5 °.

ABSOLUTE VALUE INEQUALITIES

1. Inequality for latitudes:

$$|x - 5| \leq 8$$

2. Inequality for longitudes:

$$|x - 13.5| \leq 16.5$$

TASK 3

Translate each of your sentences from task 2 into an **absolute value** inequality.

SENTENCES FROM TASK 2

1. The **center** of the latitudes is _____, and the distance from the center to the northern boundary is _____ °.
2. The **center** of the longitudes is _____, and the distance from the center to the eastern boundary is _____ °.

ABSOLUTE VALUE INEQUALITIES

1. Inequality for latitudes:
2. Inequality for longitudes:

TASK 4

(OPTIONAL)

Look at the maps of temperature and rainfall. Focus on the areas where your species lives and does not live. What do you notice?

Do the maps help you make a hypothesis (an educated guess) about what kind of environment your species needs to survive.

If not, what other factors might be important for its survival?

TASK 4

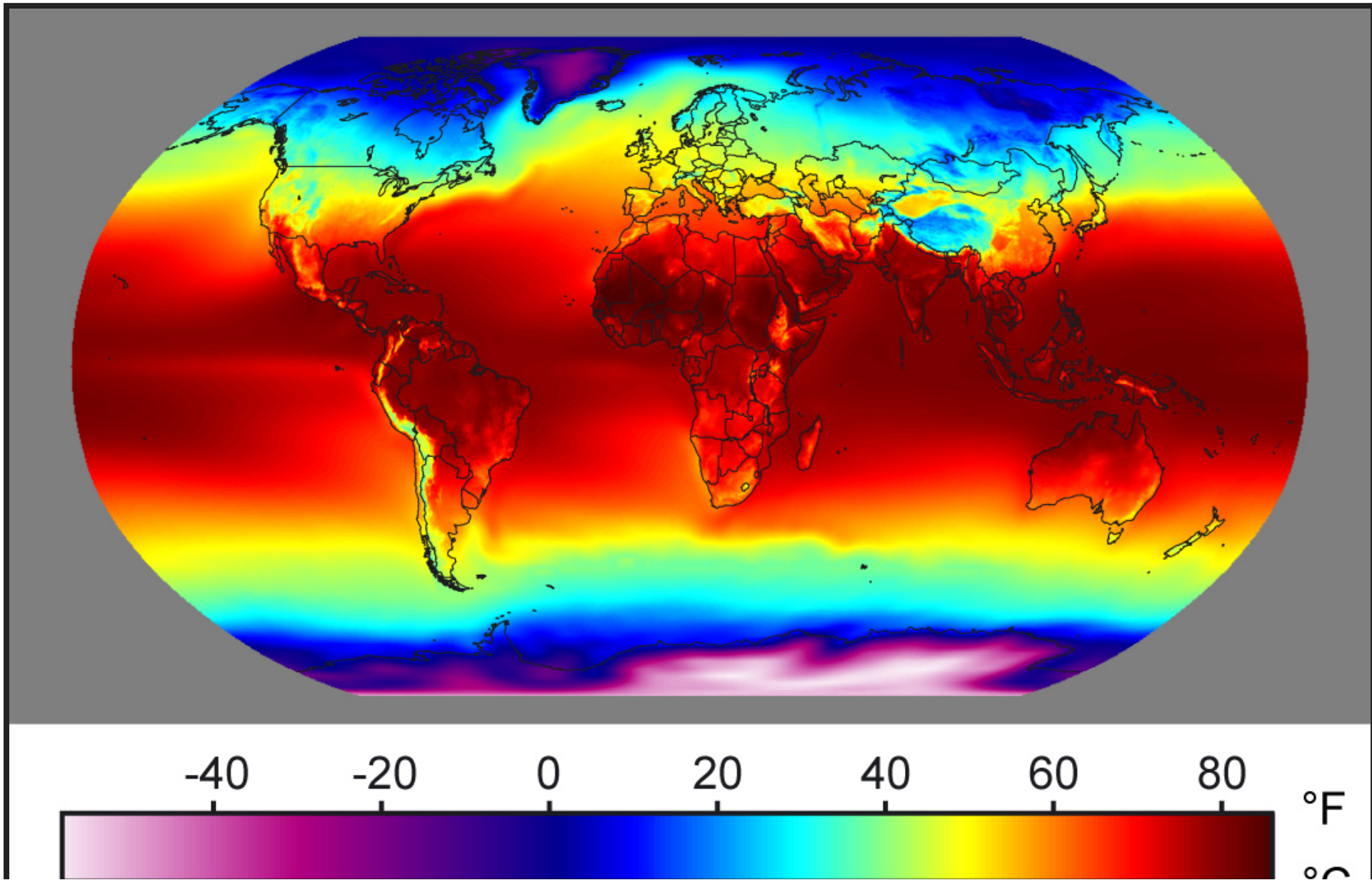
(OPTIONAL)

Look at the maps of temperature and rainfall. Focus on the areas where your species lives and does not live. What do you notice?

Do the maps help you make a hypothesis (an educated guess) about what kind of environment your species needs to survive.

If not, what other factors might be important for its survival?

TEMPERATURE



RAINFALL

