

Name _____

Lesson 3: Why are growing cities hotter?

Do Now: During our last class, we looked at different types of information about the why certain cities in Colorado are getting hotter.

What things did we decide are NOT causing temperatures to increase?	What things did we decide ARE causing temperatures to increase?
What did we decide we still need to figure out about why temperatures are getting hotter?	

Then and Now Picture Comparisons:

Look at the pictures shown on the board, and fill in the table below. You can write more than one statement for each pair of pictures.

Location	Observations: What looks different between the two pictures?	Explanation: What caused these changes? Why did these changes happen?	Ideas: How might these changes affect temperature?

Infrared Images:

Warm areas	Cool areas
Types of surfaces	Types of surfaces
Why are they warmer?	Why are they cooler?

Color and Temperature Investigation:

Question: How does the color of a surface affect how much it warms up in the sun?

Hypothesis: _____

Part A: Plan the steps of your group’s investigation to test which color of paper gets the warmest using the following materials:

- Various colors of construction paper (black, white plus green, yellow, red, orange, blue, etc.)
- 3 thermometers
- Stopwatch or timer
- Light source (indoors: desk lamp or sunny windowsill, outdoors: sunshine)

1. _____
2. _____
3. _____
4. _____
5. _____

Part B Plan the steps of your group's investigation to test which color of paper melts an ice cube the fastest using the following materials:

- Various colors of construction paper (black, white plus green, yellow, red, orange, blue, etc.)
- 3 ice cubes
- Stopwatch or timer
- Light source (indoors: desk lamp or sunny windowsill, outdoors: sunshine)

Part B Procedure:

1. _____
2. _____
3. _____
4. _____
5. _____

Part B Observations:

Ice Cube	Time to melt	Observations
Ice cube on dark colored paper		
Ice cube on light colored paper		

Conclusion:

The color that heats up the most _____.

The color that heats up the least _____.

Ice cubes melt more quickly on _____.

Ice cubes melt more slowly on _____.

Reflection:

1. What types of land surfaces does the dark color represent?

2. What types of land surfaces does the light color represent?

3. What does our data tell us about the color of a surface and its temperature?

Next Steps: What have we learned from this lesson and what should we investigate next?

What have we learned about growing cities and heat?

What do we need to figure out next about why temperatures are increasing?