My NASA Data – Data Literacy Cubes

The tools in this guide are resources to support data literacy in your instructional setting with My NASA Data Earth science materials. These flexible resources may be used with graphs, data tables, and mapped images of NASA Earth science data. To access NASA data, visit the My NASA Data visualization tool, Earth System Data Explorer (https://mynasadata.larc.nasa.gov).

The Data Literacy Cube set includes:

- Cube templates (Gaming dice may be substituted for the cubes.) Each cube type has an icon associated with it. Icons are displayed on the right side of My NASA Data pages to indicate which cubes could be used with the content on the page. It is also possible to search content by cube type.

- Leveled question sheets to help you differentiate your instruction

Note: This guide provides a labeled version identifying the different question sheets, as well as an unlabeled version for you to use at your discretion. See the bottom left for this designation on each labeled question sheet.

## How to use the Data Literacy Cubes and leveled questions:

2. Differentiate your lesson based on your students’ needs and abilities. See versions A-D to select the leveled question sheets and distribute to students.
3. Instruct students to roll cube (or numbered die) to answer appropriate question/s.
4. Visit the Maps, Graphs, and Data sections on My NASA Data to access mini lessons and resources from each of the following spheres:
   - Atmosphere https://mynasadata.larc.nasa.gov/atmosphere
   - Biosphere https://mynasadata.larc.nasa.gov/biosphere
   - Cryosphere https://mynasadata.larc.nasa.gov/cryosphere
   - Geosphere https://mynasadata.larc.nasa.gov/geosphere
   - Hydrosphere https://mynasadata.larc.nasa.gov/hydrosphere
   - Earth as a System https://mynasadata.larc.nasa.gov/earthsystem
1. Examine the map.

2. Where on Earth is this map?

3. Summarize the map.

4. Analyze the map.

5. When were the data on this map collected?

6. Ask a question about the map.
Map Cube Questions

1. Examine the map.
   A. The color that shows the most is ________. It means ________.
   B. The color that you do not see much is ________. It means ________.

2. Where on Earth is this map?
   A. A place I know on the map is ____________.
   B. Another place I know on the map is ____________.

3. Summarize the map.
   A. The different colors stand for the variable _____. It is measured in ______. (unit)
   B. The color with the biggest value/number is ____________.
   C. The color with the smallest value/number is ____________.
   D. The color in the middle is _______. Its value is ________.

4. Analyze the map.
   A. The area/s with the highest values is/are _____. This means ________.
   B. The area/s with the lowest values is/are _____. This means ________.

5. When were the data on this map collected?
   A. The date/s shown on the map is/are ____________________.
   B. A key word in the title that tells me the time frame of this map is ________.

6. Ask a question about the map.
   A. How does…?
   B. I wonder if…
   C. How is ________________ the same as? Different than?
   D. How many…? How long…? How often…?
Map Cube Questions

1. Examine the map.
   A. The color that shows the most is ________. It means ________.
   B. The color that you do not see much is ________. It means ________.

2. Where on Earth is this map?
   A. A place I know on the map is ______________.
   B. Another place I know on the map is ______________.

3. Summarize the map.
   A. The different colors stand for the variable _____.
      It is measured in _______ (unit).
   B. The color with the biggest value/number is ______________.
   C. The color with the smallest value/number is ______________.
   D. The color in the middle is _______. Its value is _______.

4. Analyze the map.
   A. The area/s with the highest values is/are _____. This means _______.
   B. The area/s with the lowest values is/are _____. This means _______.

5. When were the data on this map collected?
   A. The date/s shown on the map is/are _________________.
   B. A key word in the title that tells me the time frame of this map is ________.

6. Ask a question about the map.
   A. How does…?
   B. I wonder if…
   C. How is ________________ the same as? Different than?
   D. How many...? How long...? How often...?
Map Cube Questions

1. Examine the map.
   A. The colors that show the most represent _________.
   B. The colors that show the least represent _________.
   C. I observe a pattern which shows _________.

2. Where on Earth is this map?
   A. A place I recognize on the map is ____________. The longitude is _________.
   B. Another place I know on the map is ____________. The latitude is _________.
   C. A region I recognize is _____________.

3. Summarize the map.
   A. The scale of the colors represents the variable _________.
   B. The unit for the variable is _________.
   C. This variable explains _________________.

4. Analyze the map.
   A. The area/s with the highest values is/are _______. This represents _______.
   B. The area/s with the lowest values is/are _______. This represents _______.
   C. The values change from _______ to _______ in the _______ hemisphere.

5. When were the data on this map collected?
   A. The time frame for the map is ___________________.
   B. If the time frame/area etc. changes to _______, then the variable will _______.

6. Ask a question about the map.
   A. I wonder if...
   B. How many...? How long...? How often...?
Map Cube Questions

1. Examine the map.
   A. The colors that show the most represent ________.
   B. The colors that show the least represent ________.
   C. I observe a pattern which shows ________.

2. Where on Earth is this map?
   A. A place I recognize on the map is _____________. The longitude is ________.
   B. Another place I know on the map is _____________. The latitude is ________.
   C. A region I recognize is _____________.

3. Summarize the map.
   A. The scale of the colors represents the variable ________.
   B. The unit for the variable is ________.
   C. This variable explains _____________.

4. Analyze the map.
   A. The area/s with the highest values is/are ______. This represents ________.
   B. The area/s with the lowest values is/are ______. This represents ________.
   C. The values change from _____ to _____ in the ______ hemisphere.

5. When were the data on this map collected?
   A. The time frame for the map is ________________.
   B. If the time frame/area etc. changes to ______ , then the variable will ________.

6. Ask a question about the map.
   A. I wonder if...
   B. How many...? How long...? How often...?
Map Cube Questions

1. Examine the map.
   A. What do the colors that show the most represent?
   B. What do the colors that show the least represent?
   C. What pattern do you observe?

2. Where on Earth is this map?
   A. What is the latitude and longitude range?
   B. Identify a place you recognize and its approximate latitude and longitude.
   C. What type of map projection is this?

3. Summarize the map.
   A. What is the scale on the map?
   B. What variable is represented?
   C. What is the range and unit for the scale?

4. Analyze the map.
   A. What patterns are there for the high values?
   B. What patterns are there for the low values?
   C. How do the values change by area?

5. When were the data on this map collected?
   A. What time frame is represented?
   B. Compare this map to a map for a different time frame for the same variable.
   C. What are the similarities and differences?

6. Ask a question about the map.
   A. Form a hypothesis about the data displayed on the map.
   B. What inference can you make about the cause of the data displayed?
   C. Compare this map to another map for a different variable for the same area. What are the similarities and differences?
Map Cube Questions

1. Examine the map.
   A. What do the colors that show the most represent?
   B. What do the colors that show the least represent?
   C. What pattern do you observe?

2. Where on Earth is this map?
   A. What is the latitude and longitude range?
   B. Identify a place you recognize and its approximate latitude and longitude.
   C. What type of map projection is this?

3. Summarize the map.
   A. What is the scale on the map?
   B. What variable is represented?
   C. What is the range and unit for the scale?

4. Analyze the map.
   A. What patterns are there for the high values?
   B. What patterns are there for the low values?
   C. How do the values change by area?

5. When were the data on this map collected?
   A. What time frame is represented?
   B. Compare this map to a map for a different time frame for the same variable.
   C. What are the similarities and differences?

6. Ask a question about the map.
   A. Form a hypothesis about the data displayed on the map.
   B. What inference can you make about the cause of the data displayed?
   C. Compare this map to another map for a different variable for the same area.
      What are the similarities and differences?
Map Cube Questions

1. Examine the map.
   A. The color ________ shows the most. It means __________.
   B. The color ________ shows the least. It means __________.
   C. A pattern shows the color _________ in the areas that are __________.

2. Where on Earth is this map?
   A. The latitude goes from ____ to ____. The longitude goes from ____ to ____.
   B. This is a _________ map.

3. Summarize the map.
   A. The colors stand for the variable ____________.
   B. The unit used for the variable is ______________.

4. Analyze the map.
   A. The highest values show up in _______________ areas.
   B. The lowest values show up in ________________ areas.
   C. The values change from ______ in _____ to _______ in _____.
      (value)       (area)        (value)        (area)

5. When were the data on this map collected?
   A. The word in the title that tells me the time frame is ______________.
   B. The time frame shows the data for a day/week/month/quarter/year, etc.?

6. Ask a question about the map.
   A. How will __________ change when _________ changes?
   B. I wonder....
   C. Ask a question that starts with why, when, or where.
Map Cube Questions

1. Examine the map.
   A. The color _______ shows the most. It means __________.
   B. The color _______ shows the least. It means __________.
   C. A pattern shows the color _______ in the areas that are __________.

2. Where on Earth is this map?
   A. The latitude goes from ____ to ____. The longitude goes from ____ to ____.
   B. This is a ______ map.

3. Summarize the map.
   A. The colors stand for the variable __________.
   B. The unit used for the variable is __________.

4. Analyze the map.
   A. The highest values show up in ___________ areas.
   B. The lowest values show up in ___________ areas.
   C. The values change from ______ in _____ to ______ in _____.
      (value)  (area)  (value)  (area)

5. When were the data on this map collected?
   A. The word in the title that tells me the time frame is ______________.
   B. The time frame shows the data for a day/week/month/quarter/year, etc.?

6. Ask a question about the map.
   A. How will __________ change when __________ changes?
   B. I wonder....
   C. Ask a question that starts with why, when, or where.
Graph Cube

1. Examine the graph.
2. Summarize the graph.
3. Analyze the graph.
4. Brainstorm a question that you can answer using these data.
5. Who would be interested in this graph?
6. Assess the data values.

Graph Cube
Graph Cube Questions

1. Examine the graph.
   A. The title tells me ______________.
   B. The bottom of the graph is the ___ axis. The variable is ______.
   C. The left side of the graph is the ___ axis. The variable is ______.
   D. The time frame for the data is __________ to __________.

2. Summarize the graph.
   A. The x axis shows the (independent/dependent) variable.
   B. The y axis shows the (independent/dependent) variable.
   C. The data ____________ (increase/decrease/follow a pattern). Explain.

3. Analyze the graph.
   A. ____________ caused the change.
   B. The variable that changed as a result of something else changing is _____.
   C. If ____ (increases/decreases/stays the same), then____ (increases/decreases/stays the same).
   D. The numbers on the graph show ______________.

4. Brainstorm a question that you can answer using these data.
   A. How does...?
   B. I wonder...
   C. How is ______________ the same as ____? Different from ____________?
   D. How many __________?

5. Who would be interested in this graph?
   A. I think ___ (i.e. farmers, snow skiers, etc.) would be interested in this graph.
   B. These data are important to the _______ community because __________.

6. Assess the data values.
   A. The label on the x axis is _______. The label on the y axis is _______
   B. The unit for the x axis is ________. The unit for the y axis is __________.
   C. The scale for the x axis is _______. The scale for the y axis is ________.
Graph Cube Questions

1. Examine the graph.
   A. The title tells me ______________.
   B. The bottom of the graph is the ___ axis. The variable is ______.
   C. The left side of the graph is the ___ axis. The variable is ______.
   D. The time frame for the data is ___________ to __________.

2. Summarize the graph.
   A. The x axis shows the (independent/dependent) variable.
   B. The y axis shows the (independent/dependent) variable.
   C. The data ____________ (increase/decrease/follow a pattern). Explain.

3. Analyze the graph.
   A. _____________ caused the change.
   B. The variable that changed as a result of something else changing is _____.
   C. If ____ (increases/decreases/stays the same), then____
      (increases/decreases/stays the same).
   D. The numbers on the graph show ______________.

4. Brainstorm a question that you can answer using these data.
   A. How does...?
   B. I wonder...
   C. How is ______________ the same as _____? Different from ___________?
   D. How many ________?

5. Who would be interested in this graph?
   A. I think ___ (i.e. farmers, snow skiers, etc.) would be interested in this graph.
   B. These data are important to the ______ community because ____________.

6. Assess the data values.
   A. The label on the x axis is ________. The label on the y axis is __________.
   B. The unit for the x axis is _________. The unit for the y axis is __________.
   C. The scale for the x axis is ________. The scale for the y axis is ________.
**Graph Cube Questions**

1. **Examine the graph.**
   A. The variable on the x axis is _______. It is the (independent/dependent) variable.
   B. The variable on the y axis is _______. It is the (independent/dependent) variable.
   C. The value of the independent variable affects the dependent variable by ____.

2. **Summarize the graph.**
   A. The variable that changes as a result of another variable changing is ____.
   B. The variable that causes the change is ____________
   C. As the independent variable ____ (increases/decreases), the dependent variable ____ (increases/decreases/stays the same).
   D. The time frame represented in the graph is from ___________ to ___________
   E. The data _________ (increase/decrease/follow a pattern). Explain.

3. **Analyze the graph.**
   A. Write a hypothesis about the two variables to explain the graph. If __, then __.
   B. The quantitative evidence that supports my testable statement is __________.

4. **Brainstorm a question that you can answer using these data.**
   A. How does...? How many...?
   B. I wonder...
   C. How is __________ the same as _____? Different from ___________?

5. **Who would be interested in this graph?**
   A. I think _______ (i.e. farmers, snow skiers, etc.) would be interested in this graph.
   B. These data are important to the ______ community because __________.

6. **Assess the data values.**
   A. The label on the x axis is ________. The label on the y axis is ________.
   B. The unit for the x axis is _________. The unit for the y axis is _________.
   C. The scale for the x axis is _________. The scale for the y axis is _________.
Graph Cube Questions

1. Examine the graph.
   A. The variable on the x axis is _______. It is the (independent/dependent) variable.
   B. The variable on the y axis is _______. It is the (independent/dependent) variable.
   C. The value of the independent variable affects the dependent variable by _____.

2. Summarize the graph.
   A. The variable that changes as a result of another variable changing is ____.
   B. The variable that causes the change is ____________.
   C. As the independent variable ___ (increases/decreases), the dependent variable ___ (increases/decreases/stays the same).
   D. The time frame represented in the graph is from __________ to __________.
   E. The data ___________ (increase/decrease/follow a pattern). Explain.

3. Analyze the graph.
   A. Write a hypothesis about the two variables to explain the graph. If __, then __.
   B. The quantitative evidence that supports my testable statement is __________.

4. Brainstorm a question that you can answer using these data.
   A. How does...? How many...?
   B. I wonder...
   C. How is ___________ the same as _____? Different from ___________?

5. Who would be interested in this graph?
   A. I think _______ (i.e. farmers, snow skiers, etc.) would be interested in this graph.
   B. These data are important to the _______ community because __________.

6. Assess the data values.
   A. The label on the x axis is _______. The label on the y axis is ________.
   B. The unit for the x axis is ________. The unit for the y axis is ________.
   C. The scale for the x axis is ________. The scale for the y axis is ________.
Graph Cube Questions

1. Examine the graph.
   A. What variable is represented on the x-axis? What is the range of values?
   B. What variable is represented on the y-axis? What is the range of values?
   C. What are the units of measurement for the x and y axes?
   D. If this graph represents a geographic location, identify it on a map or globe.

2. Summarize the graph.
   A. Do the data repeat in recognizable ways? Explain.
   B. What kinds of patterns or trends do you see in the distribution of the data?
   C. How do the patterns you see in the graph relate to other things you know?

3. Analyze the graph.
   A. Describe the relationship between the variables: positive, negative, or none.
   B. Brainstorm one variable that you predict to be directly proportional.
   C. Brainstorm one variable that you predict to be inversely proportional.

4. Brainstorm a question that you can answer using these data.
   A. Ask a question beginning with how, what, where, when or why.
   B. I wonder...
   C. Form a hypothesis using the data on the graph. If ____, then ____.

5. Who would be interested in this graph?
   A. Brainstorm who would be interested in the data presented in this graph (i.e., farmers, snow skiers, etc.).
   B. Why do you think these data are important to this community?

6. Assess the data values.
   A. What is the numerical range of the data? Mean? Median? Mode?
   B. How is the mean different from the mode?
   C. Are there any outliers? If so, what are they?
Graph Cube Questions

1. Examine the graph.
   A. What variable is represented on the x-axis? What is the range of values?
   B. What variable is represented on the y-axis? What is the range of values?
   C. What are the units of measurement for the x and y axes?
   D. If this graph represents a geographic location, identify it on a map or globe.

2. Summarize the graph.
   A. Do the data repeat in recognizable ways? Explain.
   B. What kinds of patterns or trends do you see in the distribution of the data?
   C. How do the patterns you see in the graph relate to other things you know?

3. Analyze the graph.
   A. Describe the relationship between the variables: positive, negative, or none.
   B. Brainstorm one variable that you predict to be directly proportional.
   C. Brainstorm one variable that you predict to be inversely proportional.

4. Brainstorm a question that you can answer using these data.
   A. Ask a question beginning with how, what, where, when or why.
   B. I wonder...
   C. Form a hypothesis using the data on the graph. If ____, then ____.

5. Who would be interested in this graph?
   A. Brainstorm who would be interested in the data presented in this graph (i.e., farmers, snow skiers, etc.).
   B. Why do you think these data are important to this community?

6. Assess the data values.
   A. What is the numerical range of the data? Mean? Median? Mode?
   B. How is the mean different from the mode?
   C. Are there any outliers? If so, what are they?
**Graph Cube Questions**

1. Examine the graph.
   
   A. The bottom of the graph is the ___ axis. The variable is ______.
   B. The left side of the graph is the ___ axis. The variable is ______.
   C. The time frame for the data is __________ to __________.
   D. The title says __________. It means __________.

2. Summarize the graph.
   
   A. The x axis shows the (independent/dependent) variable.
   B. The y axis shows the (independent/dependent) variable.
   C. The data ___ (increase/decrease/follow a pattern). I know this because ___.

3. Analyze the graph.
   
   A. The independent variable, __________, caused the change.
   B. The dependent variable _____ changes when the independent variable changes.
   C. If ____ (increases/decreases/stays the same), then______ (increases/decreases/stays the same).
   D. The numbers on the graph show ______________.

4. Brainstorm a question that you can answer using these data.
   
   A. How does...? I wonder...
   B. How is ______________ the same as ____? Different from ________?
   C. If _____, then ______.

5. Who would be interested in this graph?
   
   A. I think ____ (i.e. farmers, snow skiers, etc.) would be interested in this graph.
   B. These data are important to the ______ community because __________.

6. Assess the data values.
   
   A. The label on the x axis is _______. The label on the y axis is ________.
   B. The unit for the x axis is ________. The unit for the y axis is ________.
   C. The scale for the x axis is ________. The scale for the y axis is ________.
Graph Cube Questions

1. Examine the graph.
   A. The bottom of the graph is the ___ axis. The variable is ______.
   B. The left side of the graph is the ___ axis. The variable is ______.
   C. The time frame for the data is ___________ to ___________.
   D. The title says ___________. It means ____________.

2. Summarize the graph.
   A. The x axis shows the (independent/dependent) variable.
   B. The y axis shows the (independent/dependent) variable.
   C. The data ___ (increase/decrease/follow a pattern). I know this because ___.

3. Analyze the graph.
   A. The independent variable, _____________, caused the change.
   B. The dependent variable _____ changes when the independent variable changes.
   C. If _____ (increases/decreases/stays the same), then_____ (increases/decreases/stays the same).
   D. The numbers on the graph show ______________.

4. Brainstorm a question that you can answer using these data.
   A. How does...? I wonder...
   B. How is _____________ the same as _____? Different from ___________?
   C. If _____, then ________.

5. Who would be interested in this graph?
   A. I think ____ (i.e. farmers, snow skiers, etc.) would be interested in this graph.
   B. These data are important to the _____ community because ____________.

6. Assess the data values.
   A. The label on the x axis is ________. The label on the y axis is ________.
   B. The unit for the x axis is _________. The unit for the y axis is _________.
   C. The scale for the x axis is ________. The scale for the y axis is _________.

www.nasa.gov
1. Summarize the data.

2. Describe the data.

3. Analyze the data.

4. Assess the data values.

5. Create questions using the data.

6. Apply the data.
Data Cube Questions

1. Summarize the data.
   A. The data are displayed in a (table, chart, etc.) ________.
   B. The title tells me the data are about __________.
   C. The data measure...
   D. The lowest value is __________.
   E. The highest value is __________.

2. Describe the data.
   A. The data were collected using _______ (i.e. thermometer, instrument, etc.).
   B. The data are collected every ________ (day, week, month, quarter, year, etc.).
   C. The unit used to describe the data is ____________.

3. Analyze the data.
   A. The geographic area of Earth where the data were collected is __________.
   B. The time range is from _________ to __________.
   C. These data show that __________.

4. Assess the data values.
   A. The mean is ________. The median is ________. The mode is ________.
   B. The highest value is ____________. The lowest value is __________.
   C. This variable belongs in the ____________ sphere of the Earth System.

5. Create questions using the data.
   A. I wonder ...
   B. If ___ changed, I think the data would (increase/decrease/stay the same) ___.
   C. How does....?
   D. Why...?

6. Apply the data.
   A. These data help us understand ________________.
   B. These data can explain why ____________.
   C. Graph the data.
Data Cube Questions

1. Summarize the data.
   A. The data are displayed in a (table, chart, etc.) ________.
   B. The title tells me the data are about __________.
   C. The data measure...
   D. The lowest value is __________.
   E. The highest value is __________.

2. Describe the data.
   A. The data were collected using ______ (i.e. thermometer, instrument, etc.).
   B. The data are collected every ______ (day, week, month, quarter, year, etc.).
   C. The unit used to describe the data is ____________.

3. Analyze the data.
   A. The geographic area of Earth where the data were collected is ____________.
   B. The time range is from ________ to __________.
   C. These data show that ____________.

4. Assess the data values.
   A. The mean is __________. The median is __________. The mode is __________.
   B. The highest value is _____________. The lowest value is ____________.
   C. This variable belongs in the ____________ sphere of the Earth System.

5. Create questions using the data.
   A. I wonder ...
   B. If ___ changed, I think the data would (increase/decrease/stay the same) ___.
   C. How does....?
   D. Why...?

6. Apply the data.
   A. These data help us understand ________________.
   B. These data can explain why ____________.
   C. Graph the data.
Data Cube Questions

1. Summarize the data.
   A. The variable is ___________. It represents _________.
   B. The range of the data is from __________ to _________.
   C. The independent variable is _________. The dependent variable is _______.

2. Describe the data.
   A. The ________________ instrument collected these data.
   B. The data are collected every ______ (day, week, month, quarter, year, etc.).
   C. The unit used to describe the data is ____________.

3. Analyze the data.
   A. The geographic area of Earth that is represented is _____________.
   B. The time range is from _________ to __________.
   C. This variable belongs in the ____________ sphere of the Earth System.

4. Assess the data values.
   A. The average is ________. The median is ________. The mode is ________.
   B. The measure of central tendency that best represents the data is the __________ (mean, median or mode). This is because ___________.
   C. The highest value is ____________. The lowest value is __________.

5. Create questions using the data.
   A. These data make me wonder _____________.
   B. I would like to compare ____________ with these data because _________.
   C. How do these data affect another sphere in the Earth System?

6. Apply the data.
   A. These data help us understand _____________.
   B. These data can explain the phenomenon of __________ because _________.
   C. Technology is related to these data because ____________.
   D. Engineering is connected to these data because _________.
   E. Graph the data.
Data Cube Questions

1. Summarize the data.
   A. The variable is __________. It represents ________.
   B. The range of the data is from _______ to ________.
   C. The independent variable is _______. The dependent variable is ________.

2. Describe the data.
   A. The ______________ instrument collected these data.
   B. The data are collected every ______ (day, week, month, quarter, year, etc.).
   C. The unit used to describe the data is ____________.

3. Analyze the data.
   A. The geographic area of Earth that is represented is _____________.
   B. The time range is from _________ to ____________.
   C. This variable belongs in the _____________ sphere of the Earth System.

4. Assess the data values.
   A. The average is ______. The median is ______. The mode is ________.
   B. The measure of central tendency that best represents the data is the ______ (mean, median or mode). This is because ________.
   C. The highest value is _____________. The lowest value is _____________.

5. Create questions using the data.
   A. These data make me wonder ________________.
   B. I would like to compare __________ with these data because ________.
   C. How do these data affect another sphere in the Earth System?

6. Apply the data.
   A. These data help us understand _________________.
   B. These data can explain the phenomenon of __________ because ________.
   C. Technology is related to these data because _____________.
   D. Engineering is connected to these data because _____________.
   E. Graph the data.
Data Cube Questions

1. Summarize the data.
   A. What does the variable represent?
   B. What is the range of the data?
   C. In which sphere of the Earth System does this variable belong?

2. Describe the data.
   A. What instrument/s collected these data?
   B. How frequently were the data collected?
   C. What unit describes the data?

3. Analyze the data.
   A. What geographic area on Earth do the data represent?
   B. What time range do these data represent?
   C. What area and time data would you like to collect to help you analyze these data?

4. Assess the data values.
   A. What is the mean? Median? Mode?
   B. Are there any outliers? If so, what are they? Why don’t they meet your expectations?
   C. Graph the data.

5. Create research questions using the data.
   A. Identify a question related to these data that you could research.
   B. Identify another scientific variable that you could evaluate with these data.
   C. How do you think this area compares to other geographic provinces in your region? (i.e., coastal plain, highlands, etc.)

6. Apply the data.
   A. What science questions do these data help us understand?
   B. Describe how you may use these data to explain a scientific phenomenon.
   C. How is Technology connected to these data?
Data Cube Questions

1. Summarize the data.
   A. What does the variable represent?
   B. What is the range of the data?
   C. In which sphere of the Earth System does this variable belong?

2. Describe the data.
   A. What instrument/s collected these data?
   B. How frequently were the data collected?
   C. What unit describes the data?

3. Analyze the data.
   A. What geographic area on Earth do the data represent?
   B. What time range do these data represent?
   C. What area and time data would you like to collect to help you analyze these data?

4. Assess the data values.
   A. What is the mean? Median? Mode?
   B. Are there any outliers? If so, what are they? Why don’t they meet your expectations?
   C. Graph the data.

5. Create research questions using the data.
   A. Identify a question related to these data that you could research.
   B. Identify another scientific variable that you could evaluate with these data.
   C. How do you think this area compares to other geographic provinces in your region? (i.e., coastal plain, highlands, etc.)

6. Apply the data.
   A. What science questions do these data help us understand?
   B. Describe how you may use these data to explain a scientific phenomenon.
   C. How is Technology connected to these data?
1. Summarize the data.
   A. The data are displayed in a (table, chart, etc.) ________.
   B. The title tells me the data are about ____________.
   C. The variable measured is ____________.
   D. The lowest value is __________.
   E. The highest value is __________.

2. Describe the data.
   A. The data were collected using __________ (i.e. thermometer, instrument, etc.).
   B. The data are collected every ________ (day, week, month, quarter, year, etc.).
   C. The unit used to describe the data is ____________.

3. Analyze the data.
   A. The geographic area of Earth where the data were collected is ______________.
   B. The time range is from _________ to __________.
   C. These data show that __________.

4. Assess the data values.
   A. The mean is ________. The median is ________. The mode is ________.
   B. The highest value is ____________. The lowest value is __________.
   C. This variable belongs in the ____________ sphere of the Earth System.

5. Create questions using the data.
   A. I wonder...
   B. If _____ changed, then the data would (increase/decrease/stay the same) ________.
   C. How does...?
   D. Why...?

6. Apply the data.
   A. These data help us understand ________________.
   B. These data can explain why __________ happens.
   C. Technology was used to get these data by ________________.
**Data Cube Questions**

1. **Summarize the data.**
   A. The data are displayed in a *(table, chart, etc.)* ________.
   B. The title tells me the data are about ____________.
   C. The variable measured is ____________.
   D. The lowest value is __________.
   E. The highest value is __________.

2. **Describe the data.**
   A. The data were collected using __________ *(i.e. thermometer, instrument, etc.)*.
   B. The data are collected every ________ *(day, week, month, quarter, year, etc.)*.
   C. The unit used to describe the data is ____________.

3. **Analyze the data.**
   A. The geographic area of Earth where the data were collected is ____________.
   B. The time range is from __________ to __________.
   C. These data show that __________.

4. **Assess the data values.**
   A. The mean is ________. The median is ________. The mode is ________.
   B. The highest value is ____________. The lowest value is __________.
   C. This variable belongs in the ____________ sphere of the Earth System.

5. **Create questions using the data.**
   A. I wonder...
   B. If _____ changed, then the data would *(increase/decrease/stay the same)* ________.
   C. How does...?
   D. Why...?

6. **Apply the data.**
   A. These data help us understand _________________.
   B. These data can explain why ____________ happens.
   C. Technology was used to get these data by ____________.