



Appendix

A science notebook is much more than just a notebook. It is a place you record your experimental data, make notes from your research and discussions, and write reflections and summaries about what you observe and learn. Your science notebook is a reflection of what you know and are able to do in this science course. It provides a visible, permanent record of your thinking and learning.

Drawings often explain more than words, so throughout your science notebook, you should have many diagrams, sketches, and drawings. Graphic organizers such as Venn diagrams and concept maps are used to help organize your thoughts or material that is being learned.

You are expected to follow these guidelines and any others presented by your teacher.

1. All writing is neat and legible.
2. Pages are not lost or torn out.
3. Mistakes are erased or drawn through with one line.
4. All notebook entries begin with the appropriate date.
5. Creativity, curiosity, and thinking are evident.
6. Artwork is relevant to the topic and tasteful in nature.



Rubric Checklist

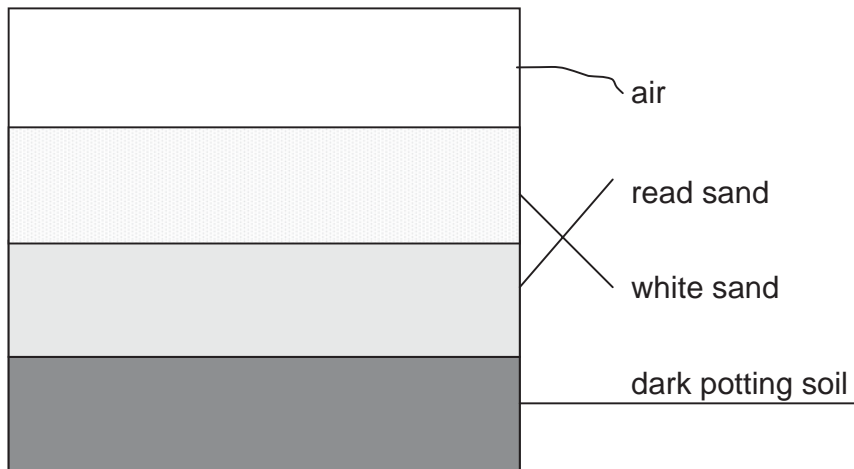
| Element | Points Possible | Earned Assessment | |
|--|-----------------|-------------------|---------|
| | | Self | Teacher |
| All notebook entries are dated. | | | |
| Diagrams, drawings, and sketches are used to explain concepts and methods. | | | |
| Graphic organizers are used to organize thinking and material being learned. | | | |
| Problems and concerns are identified and possible solutions are suggested. | | | |
| Curiosity and creativity are evident. | | | |
| Concepts are supported with accurate details. | | | |
| Appropriate science vocabulary is applied. | | | |
| Entries are neat and presentable. | | | |
| TOTAL | | | |

Drawing pictures and diagrams is a powerful way to demonstrate what you know and want to remember. You do not have to be a talented artist to make good scientific drawings. By following some simple steps, you can make diagrams that help you and others know what you have learned.

Steps:

1. Use straight lines to label the parts of the diagram.
2. Never allow label lines to cross each other.
3. Write beside the label line rather than on the label line.
4. Include enough details to allow the diagram to express the concept.
5. Always check your spelling and accuracy of labels.
6. Use color and shading as appropriate.
7. Write a brief caption beneath or beside the drawing to identify the diagram and provide additional information to the reader.

Example of a Poorly Drawn Diagram of Soil Layers in a Container



Identify at least five errors made in the diagram.
How would you correct the errors?



Rubric Checklist

| Element | Points Possible | Earned Assessment | |
|--|-----------------|-------------------|---------|
| | | Self | Teacher |
| The diagram accurately represents the concepts. | | | |
| A statement or caption explains what the drawing or diagram is meant to represent. | | | |
| Parts are labeled and appropriately named. | | | |
| Colors, shading, or other features are used to enhance the pictorial information. | | | |
| The drawing uses the space of the paper well. | | | |
| If necessary, a key is included. | | | |
| All important information is included in the drawing or diagram. | | | |
| The drawing or diagram is neat and presentable. | | | |
| TOTAL | | | |

Concept Map

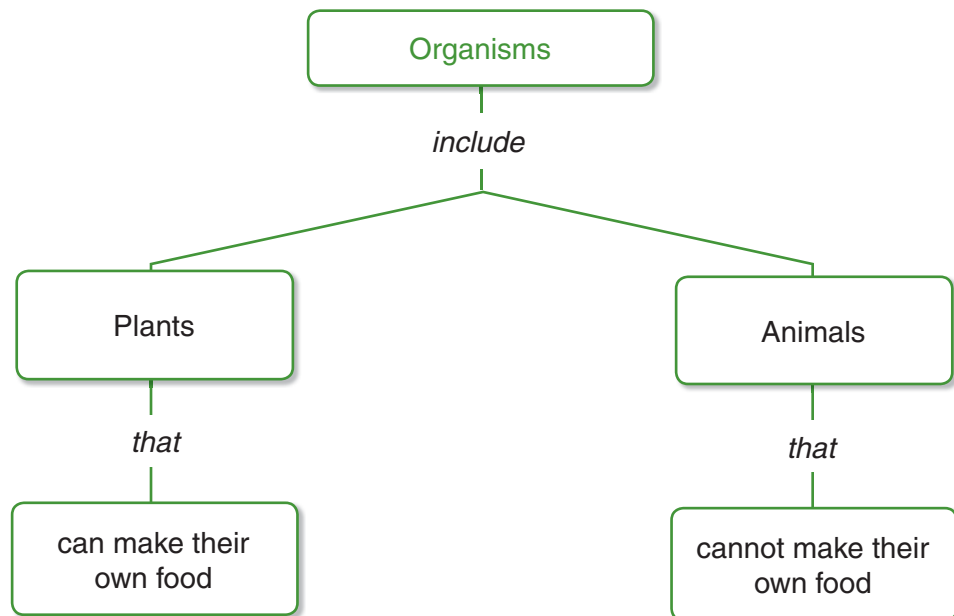
Description

A concept map is a type of graphic organizer that flows from top to bottom, showing the relationships between ideas. The ideas are placed in boxes, and lines connect the boxes to show relationships. If you follow any branch from top to bottom, it reads like a sentence. Concept maps are a visual picture of your thinking for you and for others to study.

Steps:

1. Identify and list the key concepts in the topic to be mapped.
2. Place each concept into a separate box.
3. Organize the key concepts by placing the most general ones at the top and the most specific ones at the bottom.
4. Make statements by adding lines and linking words to connect the boxes.
5. Revise the map until it accurately represents your thinking.
6. Optional: Use a computer to make your final draft.

Example of a Concept Map



Rubric Checklist

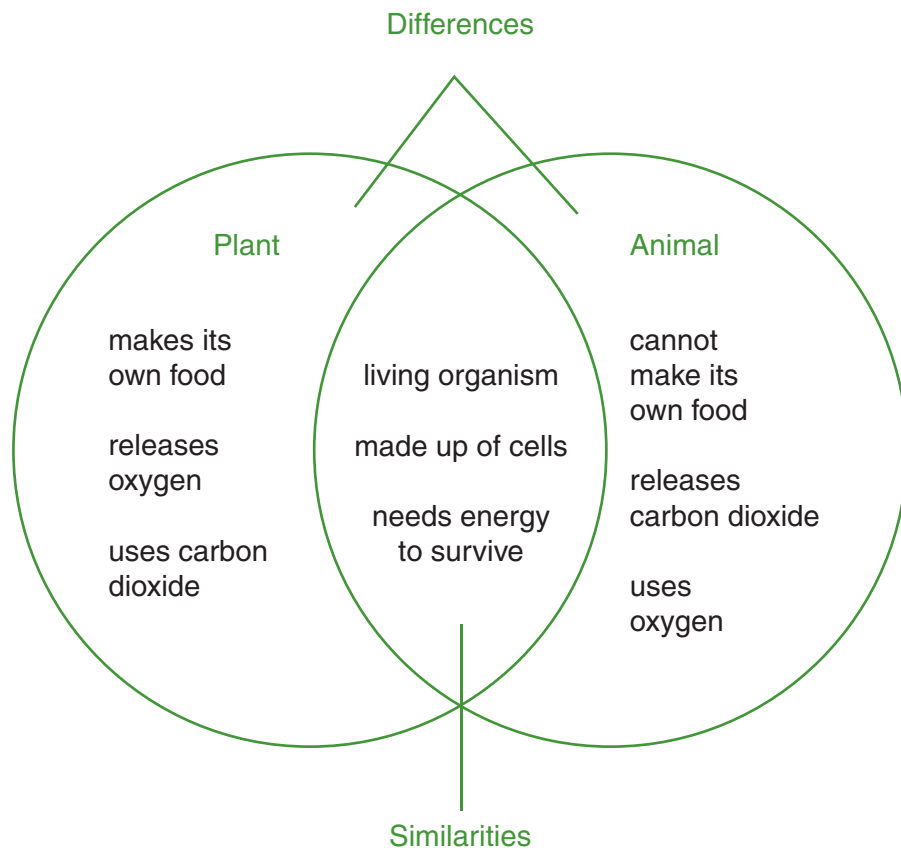
| Element | Points Possible | Earned Assessment | |
|--|-----------------|-------------------|---------|
| | | Self | Teacher |
| The set of concepts are organized from most general to most specific. | | | |
| Lines and linking words are used to connect concepts. | | | |
| The concept map has an appropriate title. | | | |
| The flow of the concept map is easy to follow. | | | |
| The concept map provides accurate information. | | | |
| All important information is included in the concept map. | | | |
| Moving from top to bottom, all branches of the map read like a sentence. | | | |
| The concept map is neat and presentable. | | | |
| TOTAL | | | |

Venn Diagrams

Description

A Venn diagram is a graphic organizer that is used to display the similarities and differences between items that are being studied. Usually, two circles are drawn with their middle sections overlapping. Each circle is then labeled with the name of one of the two subjects being studied. The differences are listed in the part of each circle that does not overlap. The similarities are listed in the intersection between the two circles. Sometimes more than two circles are used. For example, if three items are being studied, the Venn diagram will have three overlapping circles.

Comparing Plants and Animals



Rubric Checklist

| Element | Points Possible | Earned Assessment | |
|--|-----------------|-------------------|---------|
| | | Self | Teacher |
| The Venn diagram has a descriptive title. | | | |
| The diagram is made of overlapping equal-sized circles. | | | |
| Each circle is labeled with a name that describes the subject. | | | |
| Information is factual. | | | |
| The intersection of the diagram lists characteristics common to both subjects. | | | |
| All important information is included in the diagram. | | | |
| The Venn diagram is neat and presentable. | | | |
| TOTAL | | | |

Line and Bar Graphs

Description

Graphs are used to make visual displays or pictures of data. They are often useful to show patterns, trends, and relationships between variables. The following steps should be used to make a line or bar graph.

1. Draw the axes on grid paper using a straight edge. Allow enough space beneath the x-axis and to the left of the y-axis to write labels and numbers.
2. Place the independent variable on the horizontal axis and the dependent variable on the vertical axis.
3. Indicate the unit of measurement for each variable inside parentheses.
Example: Distance Traveled (km)
4. Determine an appropriate scale for each axis. Keep intervals evenly spaced. When possible have each square on the grid represent an interval of 1 unit or multiples of 2, 5, or 10.
5. Accurately plot your data. For a line graph, place dots at the intersection of the recorded values for the independent and dependent variables. For bar graphs, make vertical bars of equal width up to points of intersection of the recorded values for the independent and dependent variables.
6. Multiline graphs or multibar graphs must include a key.
7. An appropriate and descriptive title should be written at the top of the graph.



Rubric Checklist

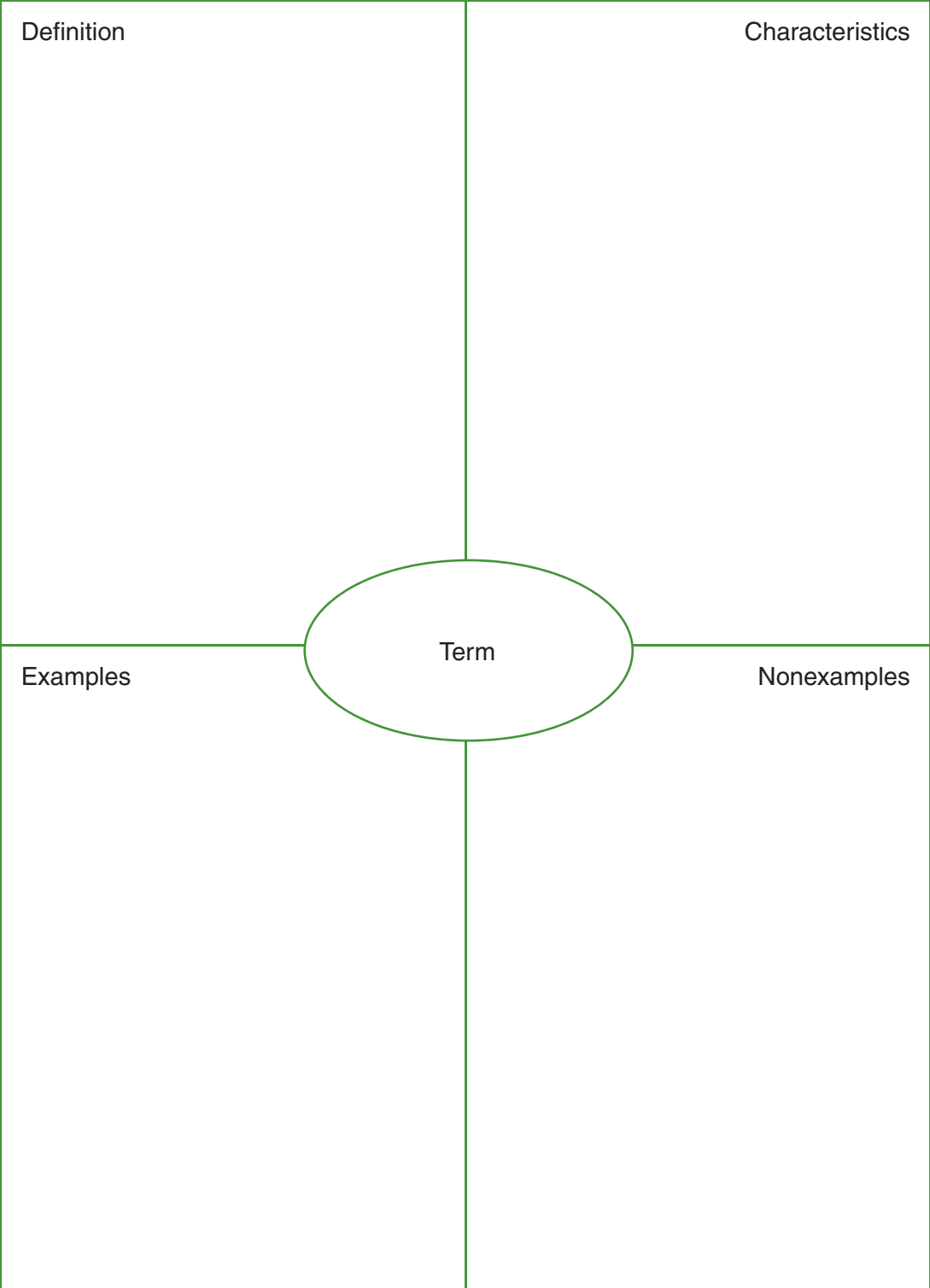
| Element | Points Possible | Earned Assessment | |
|---|-----------------|-------------------|---------|
| | | Self | Teacher |
| Appropriate intervals are used on each axis based on the range of data. | | | |
| A clearly stated title for the graph describes the data. | | | |
| Axes are clearly labeled. | | | |
| Data are accurately plotted. | | | |
| Colors, labels, and other features are used to make the graph easier to read. | | | |
| If needed, a key is included. | | | |
| The independent variable is placed on the x-axis and the dependent variable is on the y-axis. | | | |
| The graph is neat and presentable. | | | |
| TOTAL | | | |

| Element | Points Possible | Earned Assessment | |
|---|-----------------|-------------------|---------|
| | | Self | Teacher |
| Science concepts are used correctly. | | | |
| Concepts are supported with accurate details. | | | |
| Information is accurate and complete. | | | |
| Diagrams, colors, labels, and other features are used if appropriate. | | | |
| Appropriate language mechanics including complete sentences are used. | | | |
| The writing is organized and focused on the topic. | | | |
| The purpose of the writing is clearly carried out. | | | |
| If appropriate, information sources are properly referenced. | | | |
| The writing piece is neat and presentable. | | | |
| TOTAL | | | |



Frayer Model

Introduction



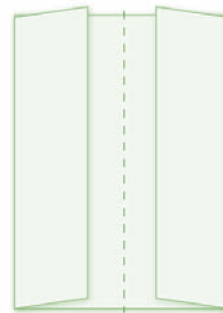
Folded Models in Science

Directions

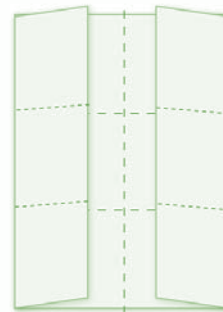
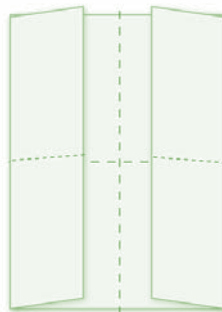
1. Fold the paper in half lengthwise.



2. Unfold the paper. Fold the left flap to meet the middle crease and the right flap to meet the left flap in the middle.



3. Fold the paper in half widthwise, creating a crease across the middle for a four-window folded model or in thirds for a six-window folded model.



4. Cut the creases of the two front flaps to the edges, creating the individual flaps.

