COLUMN COMPARE – CONTRAST ORGANIZER:

This format allows one to compare and contrast two or more aspects of a general topic. The information is arranged into divided columns for noting similarities and differences between the items.

	VOLCANOES	
	Shield	Composite
Lava Type	basaltic composition low silica content	granitic composition high silica content
Shape	broad sides low relief	steep sides high relief
Eruptions	quiet	explosive
Examples	Mauna Lua	Mt. St. Helens

(D. Applegate, CAL)

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MATRIX COMPARE – CONTRAST ORGANIZER:

The compare-contrast matrix is similar to the column organizer in function but not in format. With this strategy, simple columns are used to record the similarities and differences of two or more things (e.g. people, places, ideas).

ANCIENT CIVILIZATIONS

	Near East	Egypt	Peru
Monumental Architecture	ziggurats	pyramids temples	pyramids terraces
Writing	cuneiform	hieroglyphics coptic	none
Political Leaders	secular	divine	divine
Irrigation	canal	shaduf	canal

(D. Applegate, CAL)

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Column Venn Diagram

Directions: In the two outer areas list the characteristics of two issues. In the middle area list their shared characteristics.

Cause and Effect

Directions: Identify the causes and effects of events in the story.

Causes   Effects

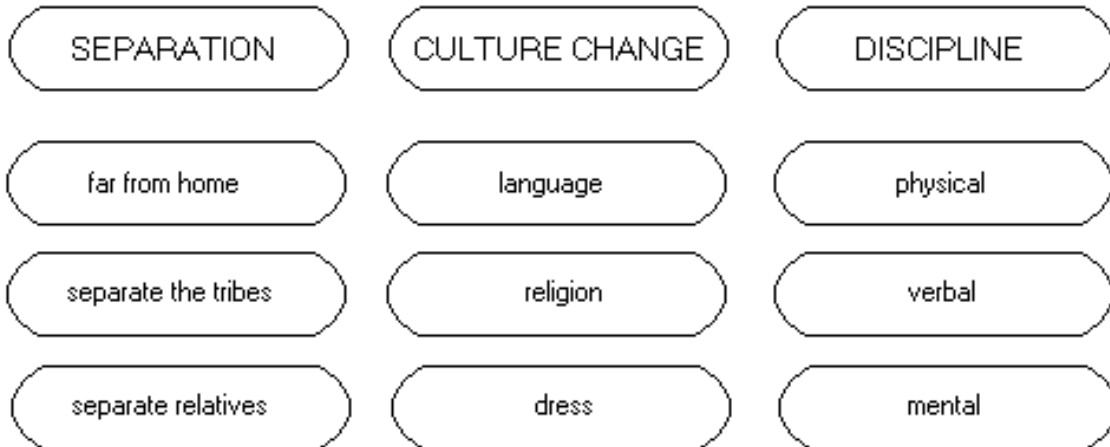# Pros and Cons Scale

The Issue:

Pros	Cons

COLUMN HIERARCHY ORGANIZER:

This hierarchical strategy involves arranging main ideas and supporting details for some topic into a series of adjacent columns. A place for writing a summary statement(s) is also included.

NATIVE AMERICAN SCHOOL POLICY (early 1900's)

| SEPARATION	CULTURE CHANGE	DISCIPLINE
far from home	language	physical
separate the tribes	religion	verbal
separate relatives	dress	mental

Children were removed from contact with home, other children from the tribe, and kin. They were forced to abandon traditions and adopt European language, religion, and dress. The militaristic form of discipline involved physical, verbal, and mental abuses.
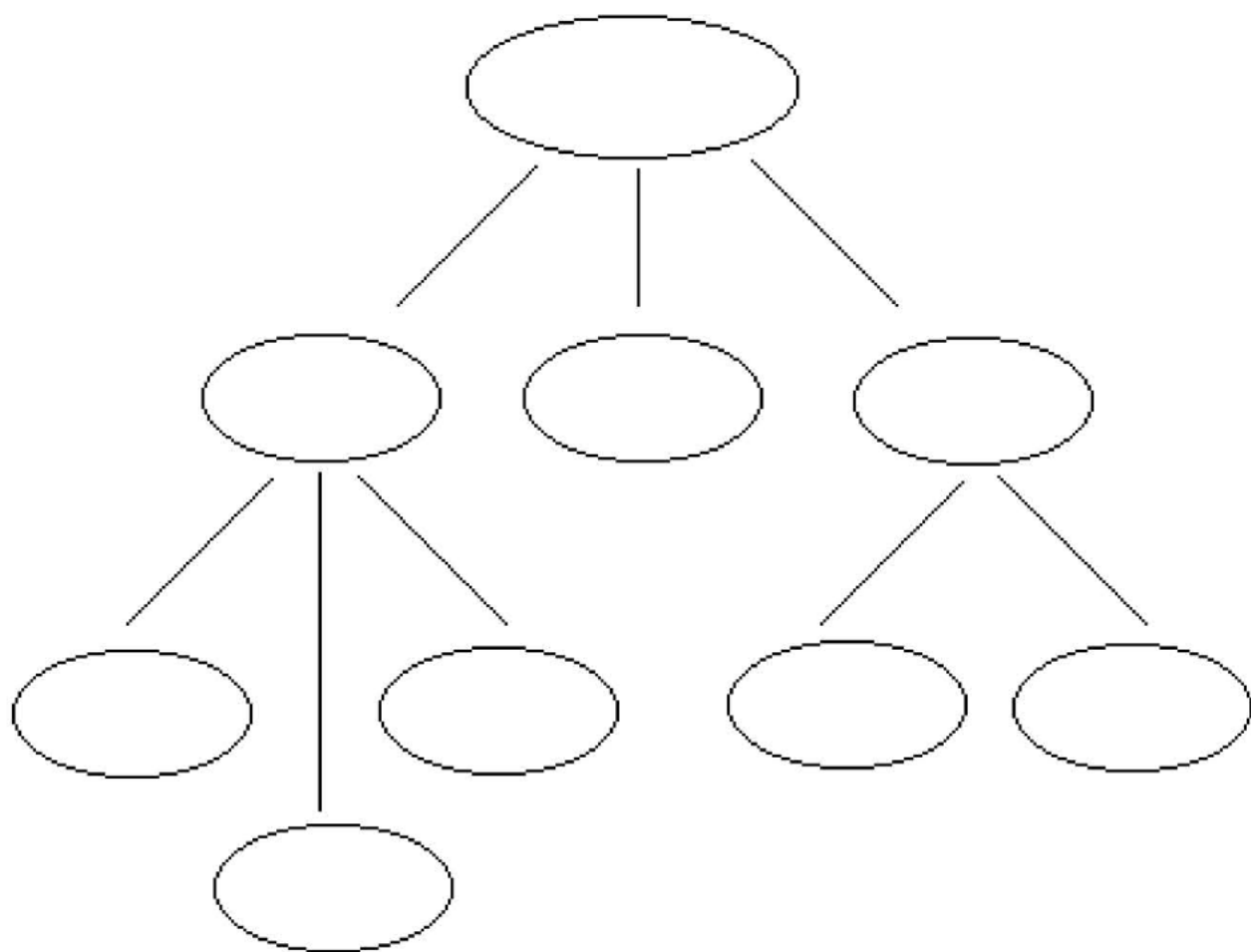
(D. Applegate, CAL)

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NETWORK HIERARCHY ORGANIZER:

The network organizer uses "bubbles" (or another shape) to arrange information from general to specific. It may be used to organize causal information (e.g. causes of inflation), hierarchical information (e.g. family "tree"), or branching procedural information (e.g. the digestive system).


(D. Applegate, CAL)

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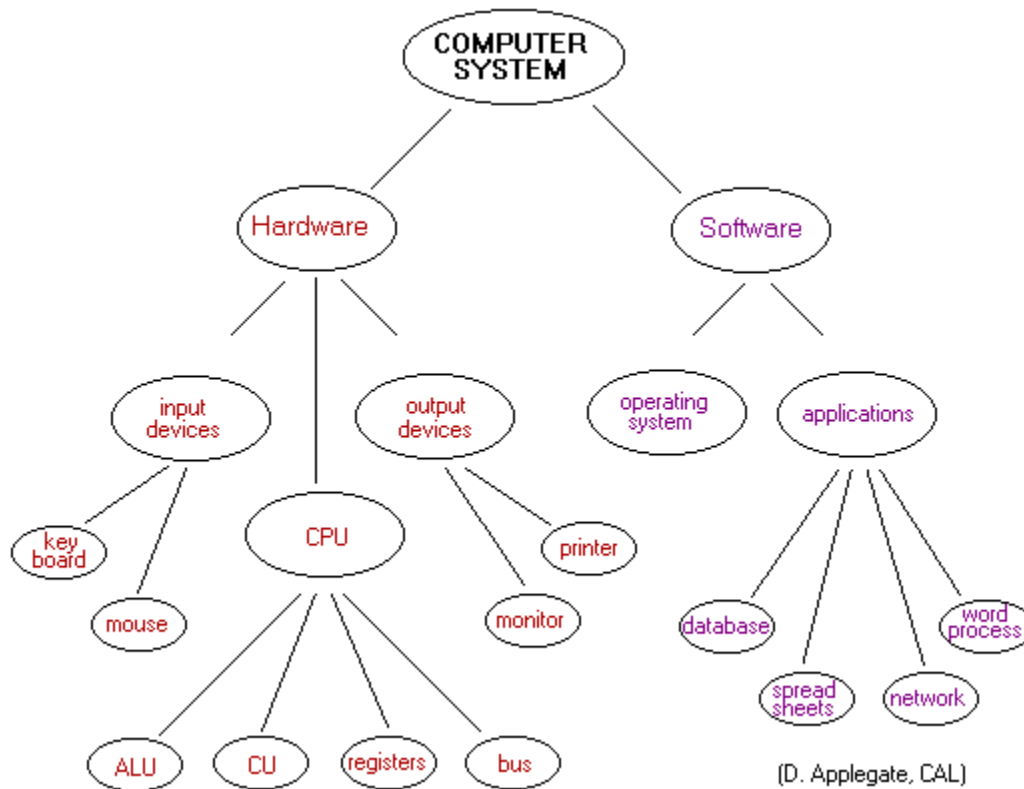
TREE HIERARCHY ORGANIZER:

The tree organizer, a variation of the network organizer, uses lines to arrange information from general to specific. It may be used to organize causal information (e.g. causes of inflation), hierarchical information (e.g. family "tree"), or branching procedural information (e.g. the digestive system).
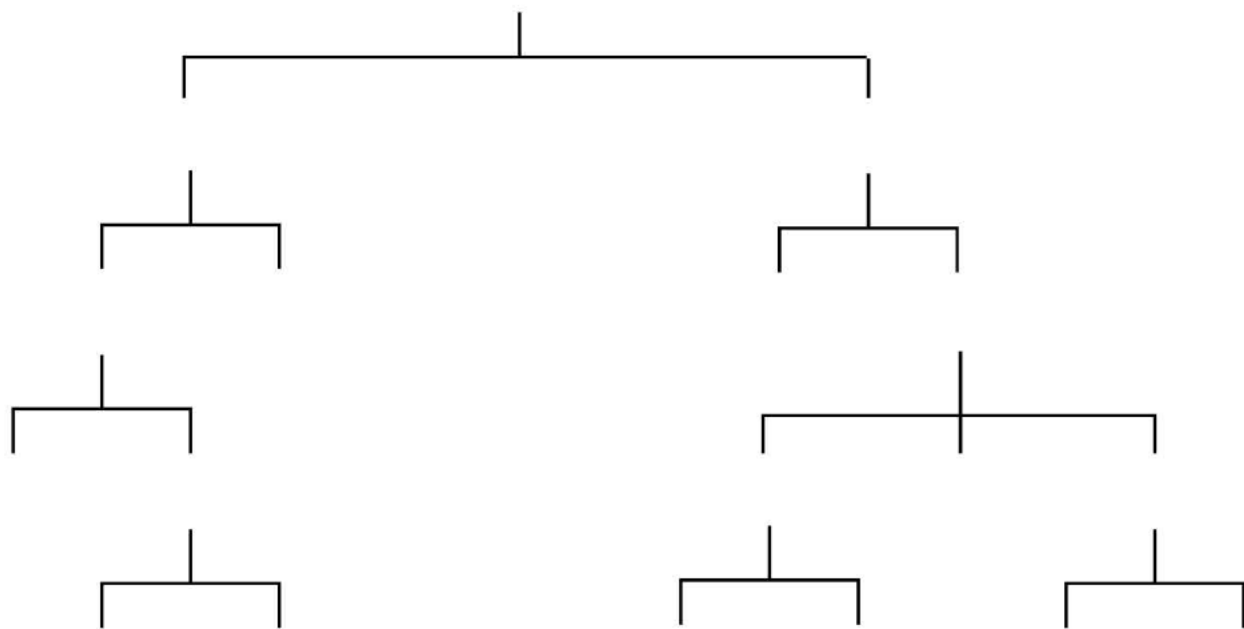

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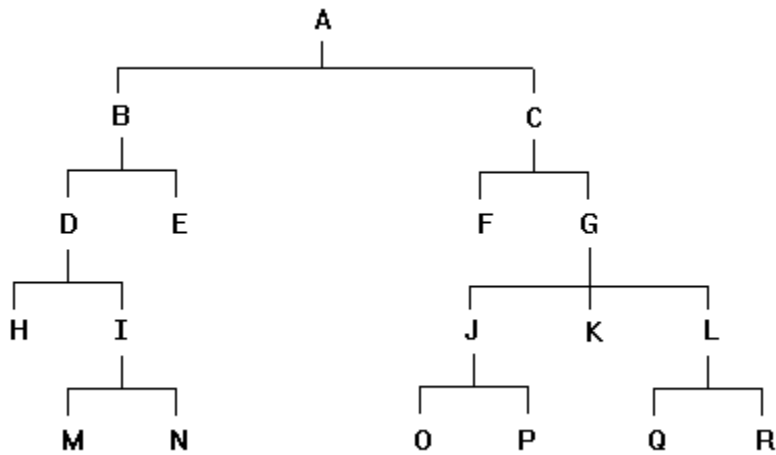
Tree Hierarchy Example using Biology:
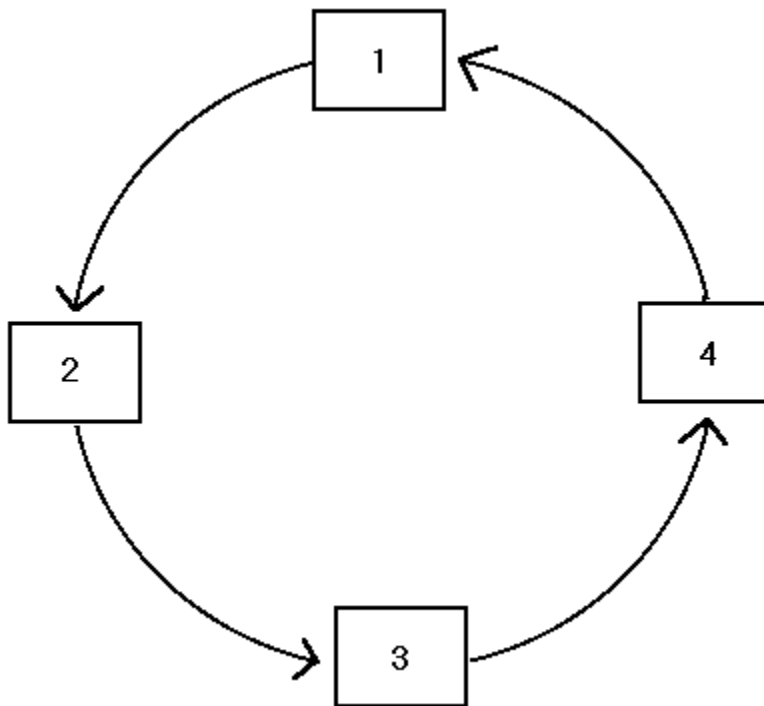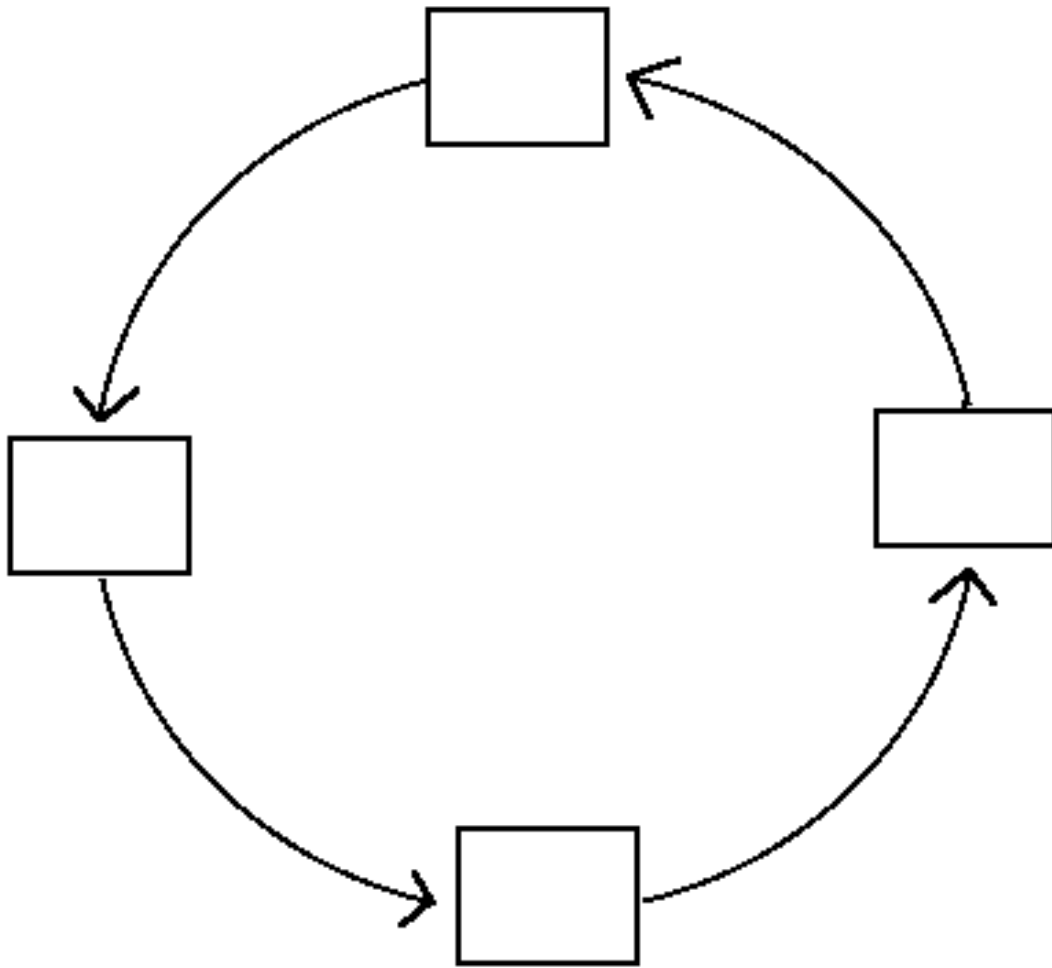

http://www.muskingum.edu
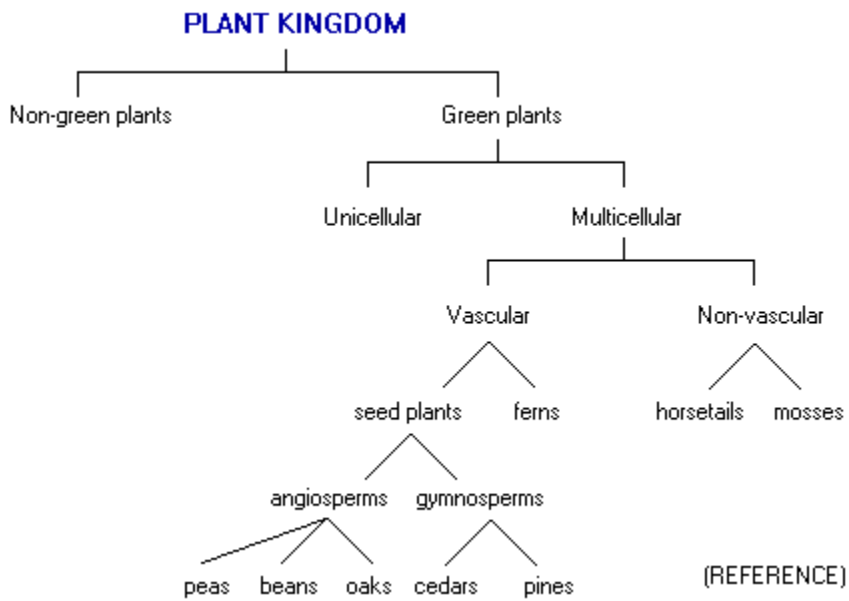
CYCLE FLOW CHART ORGANIZER:

Interactions among a series of connected events or phenomena (e.g. computer network, the water cycle) are represented in cycle charts. Cyclical charts commonly illustrate closed systems of phenomena.

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COMBINATION FLOW CHART ORGANIZER:

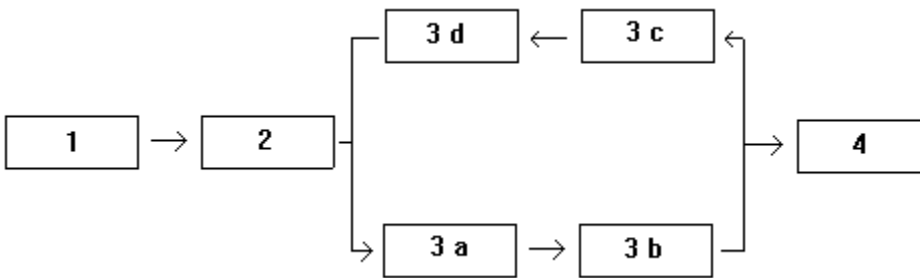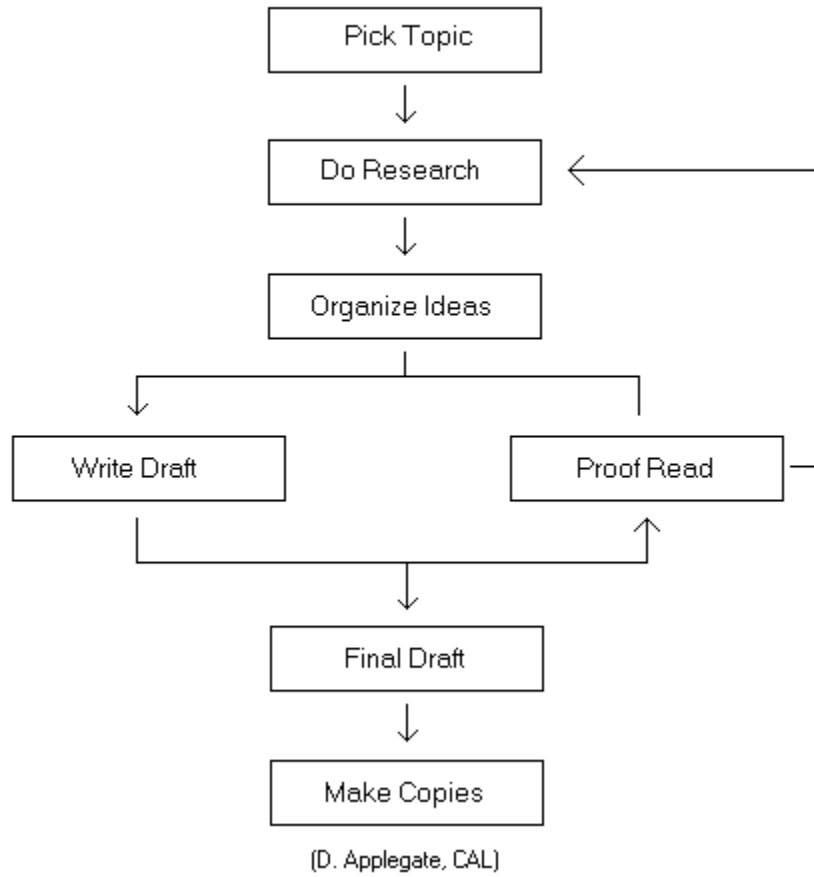Combination flow charts combine aspects of cyclical and linear flow charts to illustrate more complex relationships among ideas. They are useful if several alternatives exist at one or more steps in the process being represented.

```
                   ┌─[ 3 d ] ← [ 3 c ] ←┐
[ 1 ] → [ 2 ]─┤                           ├→ [ 4 ]
                   └→[ 3 a ] → [ 3 b ]──┘
```
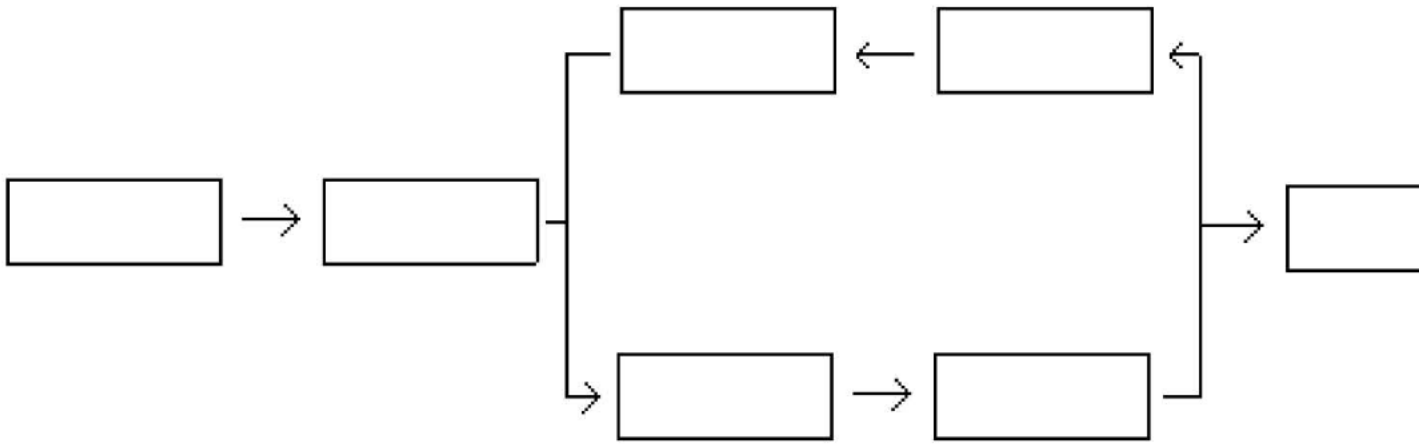
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Combination Flow Chart – Writing Example

THE WRITING PROCESS

```
              ┌──────────────┐
              │  Pick Topic  │
              └──────────────┘
                     ↓
              ┌──────────────┐
              │ Do Research  │ ←────────────────┐
              └──────────────┘                  │
                     ↓                          │
              ┌──────────────┐                  │
              │ Organize Ideas│                 │
              └──────────────┘                  │
             ┌────────┴────────┐                │
             ↓                 ↓                │
    ┌──────────────┐    ┌──────────────┐        │
    │  Write Draft │    │  Proof Read  │ ───────┘
    └──────────────┘    └──────────────┘
             └────────┬────────↑
                      ↓
              ┌──────────────┐
              │  Final Draft │
              └──────────────┘
                     ↓
              ┌──────────────┐
              │  Make Copies │
              └──────────────┘
```

(D. Applegate, CAL)

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Flow Chart – Chemistry Example:

STEP 1. *Write the balanced equation.*

$$2CuCl_{(aq)} + H_2S_{(g)} \longrightarrow Cu_2S_{(cr)} + 2HCl_{(aq)}$$

STEP 2. *Find the number of moles of the given substance.*

$$1\ Cu \quad 1 \times 63.5 = 63.5\ g$$
$$1\ Cl \quad 1 \times 35.5 = 35.5\ g$$
molar mass of CuCl = 99.0 g

9.90 g CuCl	1 mol CuCl	. . . .
	99.0 g CuCl	

STEP 3. *Inspect the balanced equation to determine the ratio of moles of required substance to moles of given substance.*

9.90 g CuCl	1 mol CuCl	1 mol Cu$_2$S	. . . .
	99.0 g CuCl	2 mol CuCl	

STEP 4. *Express the moles of required substance in terms of grams, then covert moles to grams.*

| 9.90 g CuCl	1 mol CuCl	1 mol Cu$_2$S	159 g Cu$_2$S	= 7.95 g Cu$_2$S
	99.0 g CuCl	2 mol CuCl	1 mol Cu$_2$S	

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LINEAR FLOW CHART ORGANIZER:

Information or phenomena related in a non-circular manner are best represented by linear flow charts. With this type of flow chart, the phenomena have a beginning point and an end point, with intervening steps or things in between. Relationships are indicated by arrows. Linear flow charts may be arranged top-down or left-right. One or several geometric shapes may be used to represent the information.
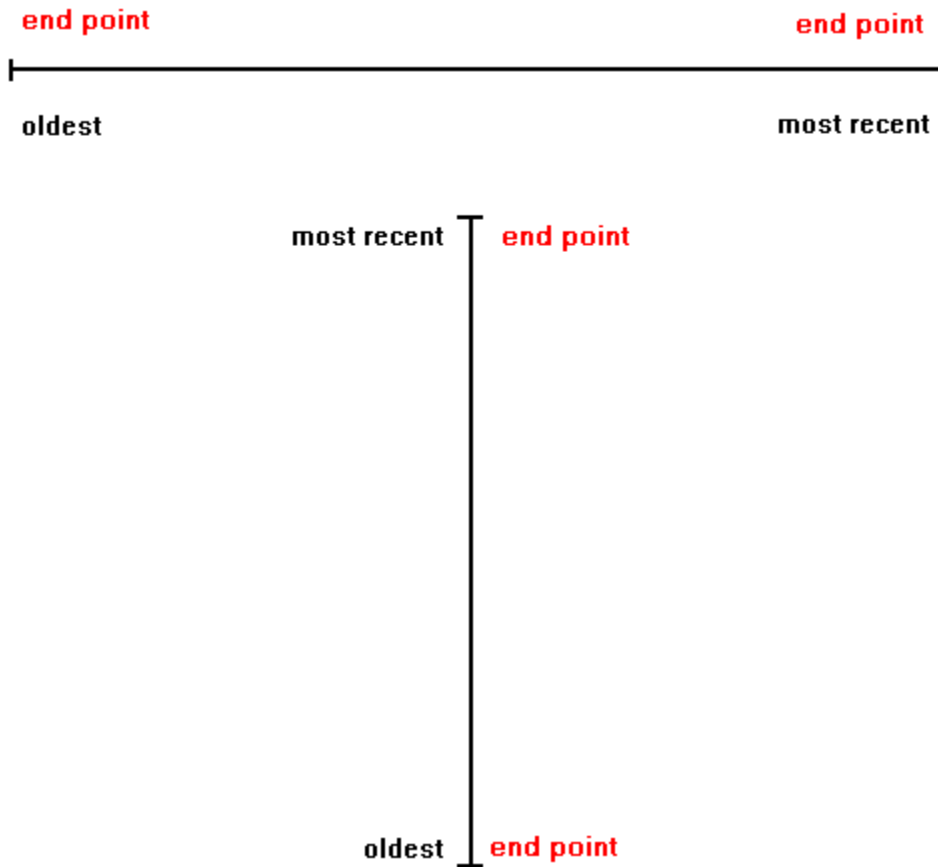
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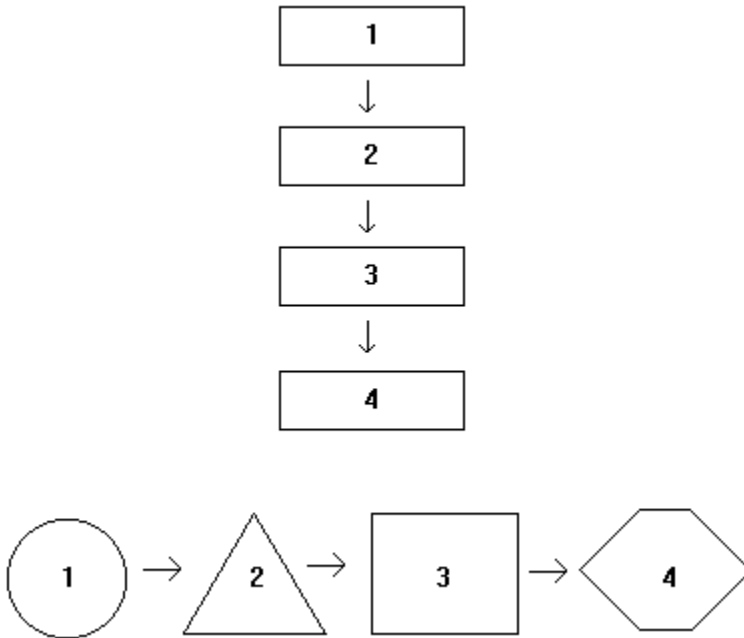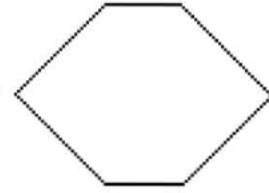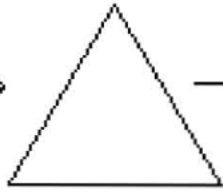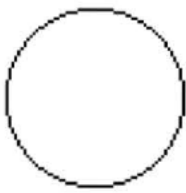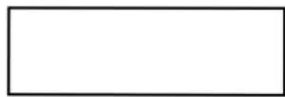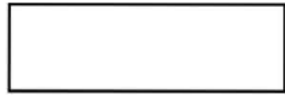
CONTINUUM CHART ORGANIZER:

Time lines, degrees, and shades of meaning can be organized on continuum or scale charts. Events or phenomena are added between the two end points on the chart. Continuum charts may be oriented horizontally or vertically. For degrees and shades of meaning, the ends of the continuum chart represent the two endpoints. For time lines, the oldest events are placed to the left or at the bottom while the more recent events are placed to the right or at the top.

end point   **end point**

oldest   most recent

most recent **end point**

oldest **end point**

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Continuum Chart – (Horizontal Design) Biology Example:

STAGES IN PLANT DOMESTICATION

Wild   Weedy   Cultivated   Domesticated

independent of
human intervention

dependent on
human intervention

(D. Applegate, CAL)

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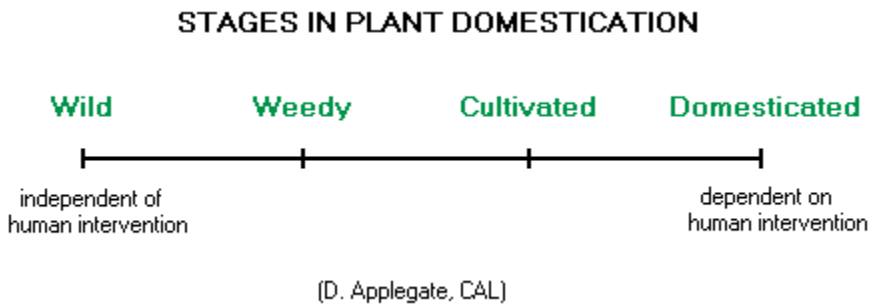
Continuum Chart – History Example:

MAJOR EVENTS IN BIBLICAL HISTORY

ROMAN EMPIRE **63 BC**	Pompey conquers Judah Herod the Great Christ born 6 BC (?), died 26 AD (?)
HELLENISTIC **328 BC**	Alexander the Great Greek influence
MACCABEAN **333 BC**	Seleucids (Syria) Antiochus IV
POST EXILE **538 BC**	Babylonians conquered / Persians
BABYLONIAN EXILE **538 BC**	Fall of Jerusalem 587 BC Judah people / Babylonia
MONARCHY **1020 BC**	Saul united Israel David - Israel's greatest king Solomon Split - North / Israel South / Judah Baal = fertility god
JUDGES **1200 BC**	Joshua led Hebrews to conquer Canaan Samuel - last judge
EXODUS **1280 BC**	Moses leads from Egypt to Arabian desert 10 Commandments on Mt. Sinai
PATRIARCHAL **MATRIARCHAL** **1850 BC**	Founders of Jewish nation: Abraham, Isaac, Jacob
PRIMEVAL **(prehistory)**	Genesis I-II Cain / Abel Creation Noah Man's Sin Tower of Babel

(J. Scheltz, CAL)

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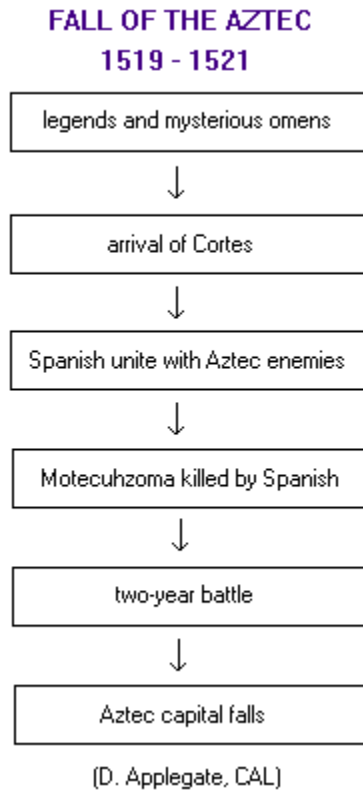
SERIES OF EVENTS CHAIN ORGANIZER:

The series of events chain is a special form of linear flow chart that illustrates the sequence of events of a particular occurrence. The chain begins with the initiating event and ends with the final outcome.

FALL OF THE AZTEC
1519 - 1521

legends and mysterious omens

↓

arrival of Cortes

↓

Spanish unite with Aztec enemies

↓

Motecuhzoma killed by Spanish

↓

two-year battle

↓

Aztec capital falls

(D. Applegate, CAL)

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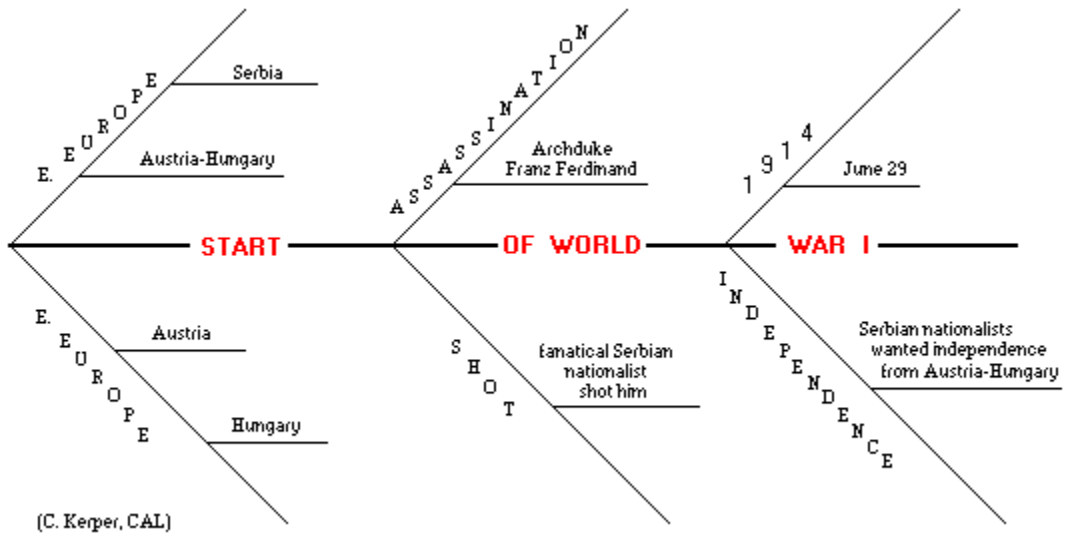
HERRINGBONE MAPS (FISHBONE MAPS):

The herringbone technique is designed to show causal interactions of a complex event (e.g. an armed conflict) or a complex phenomenon (e.g. plate tectonics). It describes a main idea in terms of the following six questions: Who was involved? What happened? When did it happen? Where did it happen? How did it happen? Why did it happen? And advantage of the herringbone technique is it helps students encode information in a manner that enhances their ability to answer essay questions. It is a useful strategy for history courses. A herringbone map is set up like a fish skeleton. The "backbone" of the map represents the main idea or concept. The "spines" of the map represent the 6 questions about the main idea. Supporting information for each of the 6 questions is written next to each "spine".
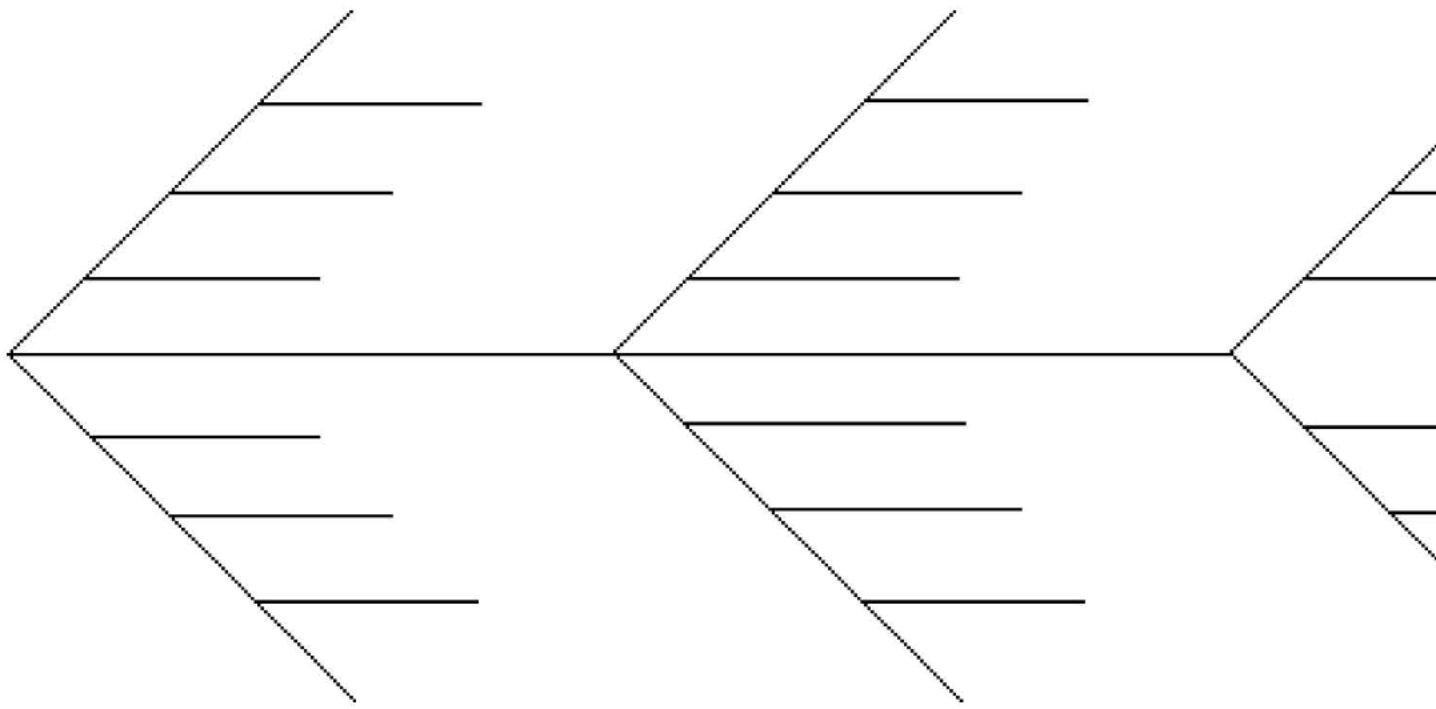

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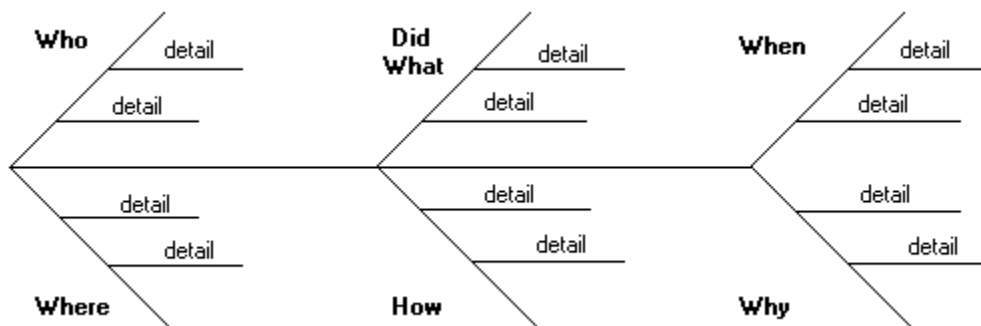
Herringbone Map – History Example:

(C. Kerper, CAL)

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Fish Bones

Who

What

When

Where

Why

How

© Freeology.com
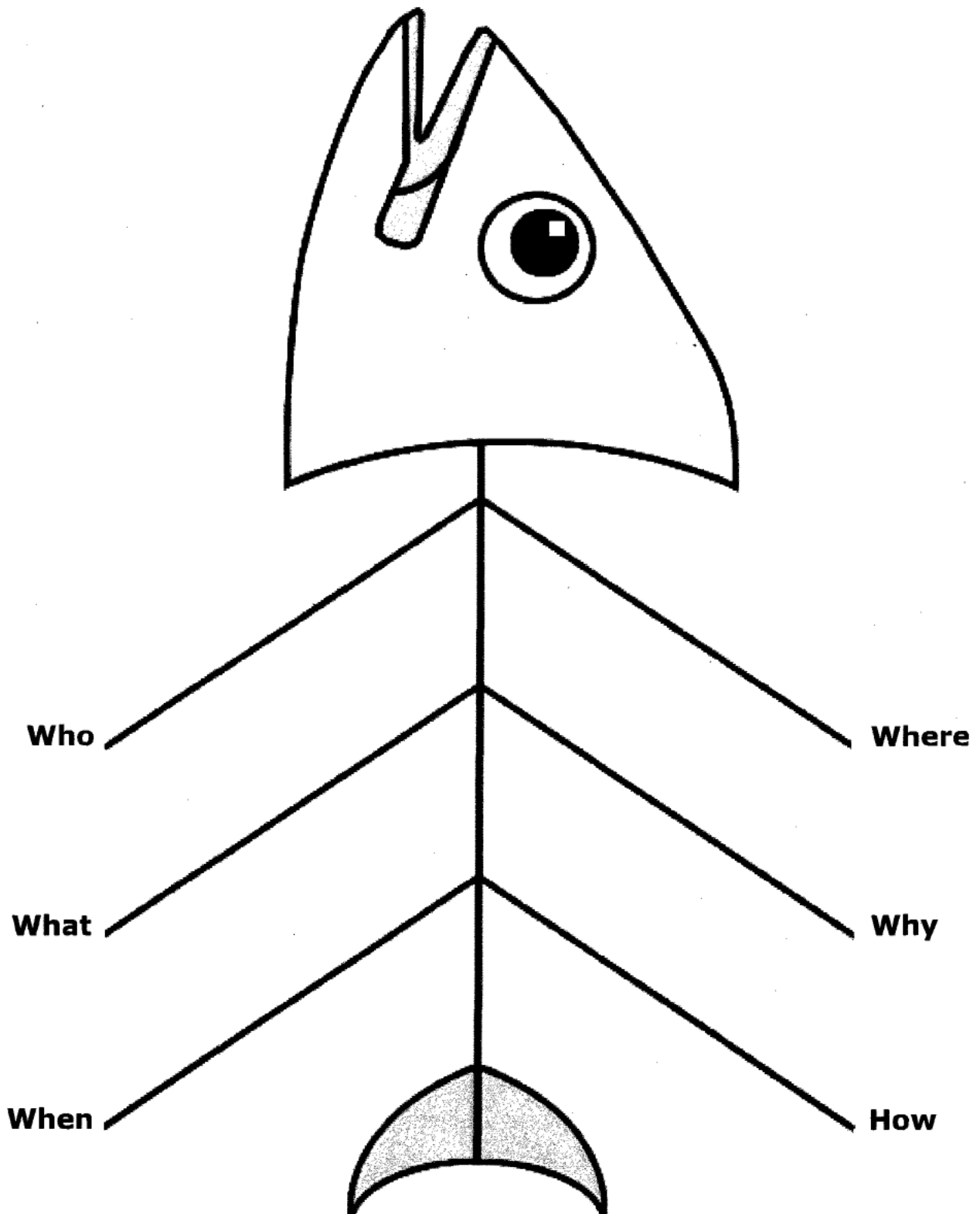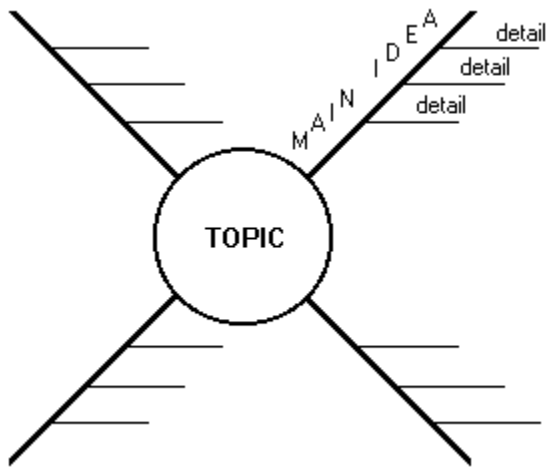
SPIDER MAPS ORGANIZER:

Spider maps are used to describe a central idea by using three key frame questions: What is the central idea? What are its attributes? What are its functions? They help students make associations and see relationships among central concepts, main ideas, and supporting details.

As illustrated below, spider maps have three components. The major topic, concept, or theme is placed in a circle in the center of the page or note card; this represents the "body" of the spider. The "legs" of the spider represent the main ideas related to the central topic, concept or theme. Supporting details are placed on short lines off the main idea lines.

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Spider Map – History Example:

daughters

FAMILY

sanitation system

calendar clock

copying machine

INVENTOR

THOMAS JEFFERSON

WRITER

letters

journals

Constitution

PRESIDENT

VIRGINIA

state leader

(Roe, Stoodt, and Burns, 1987, p. 121)

Cabinet

http://www.muskingum.edu
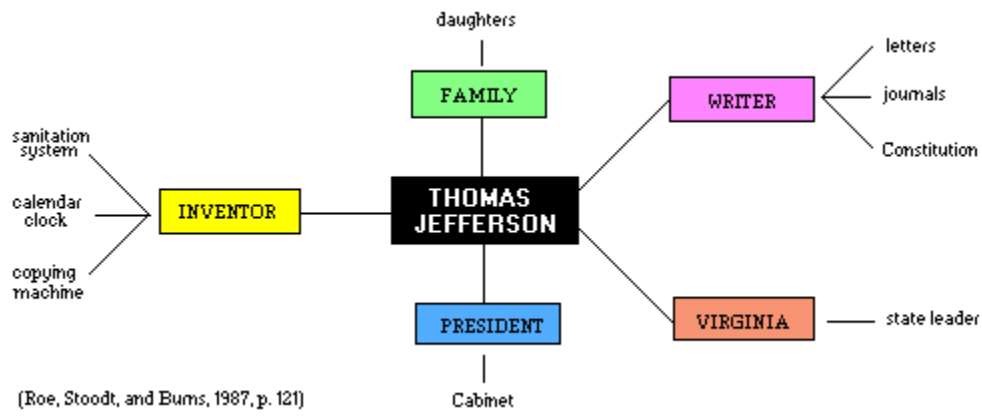
Spider Map – Theatre Example:

script   plan   scenario

WHAT IS PERFORMED

THEATRE

AUDIENCE   PERFORMANCE

music   acting
lighting   scenery
costumes

(D. Applegate, CAL)

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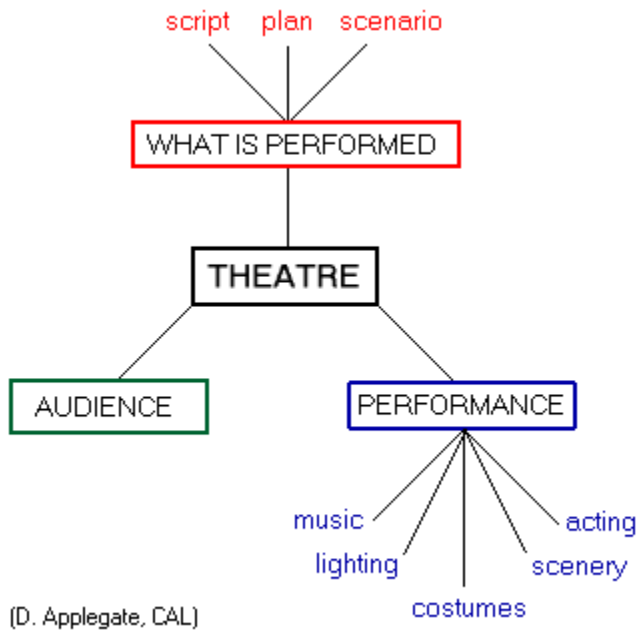
Spider Web

Write the topic in center and the details in the boxes.

37

SAMPLE WORD MAP (CONCEPT MAP, SEMANTIC MAP) ORGANIZER:

Sample word maps help to organize new concepts and their characteristics. They summarize the traits of an item and provide examples of it. Sample word maps can be used to organize information about people, places, or ideas. They help students link essential characteristics and exam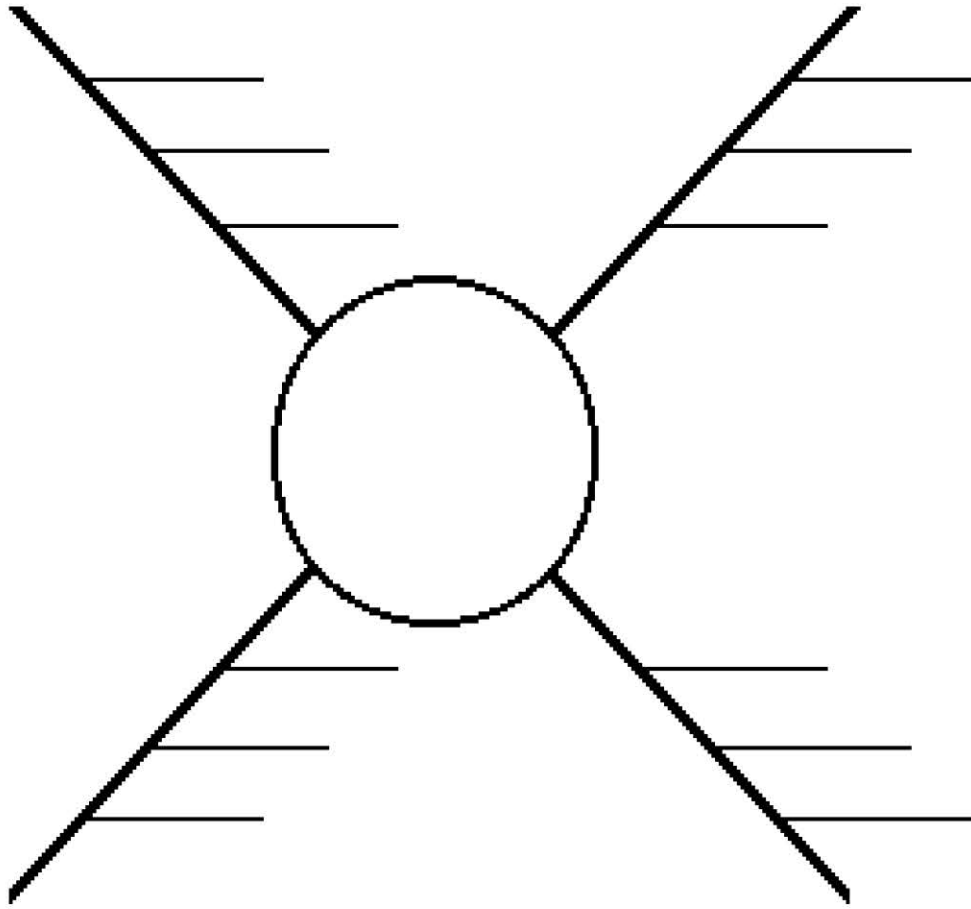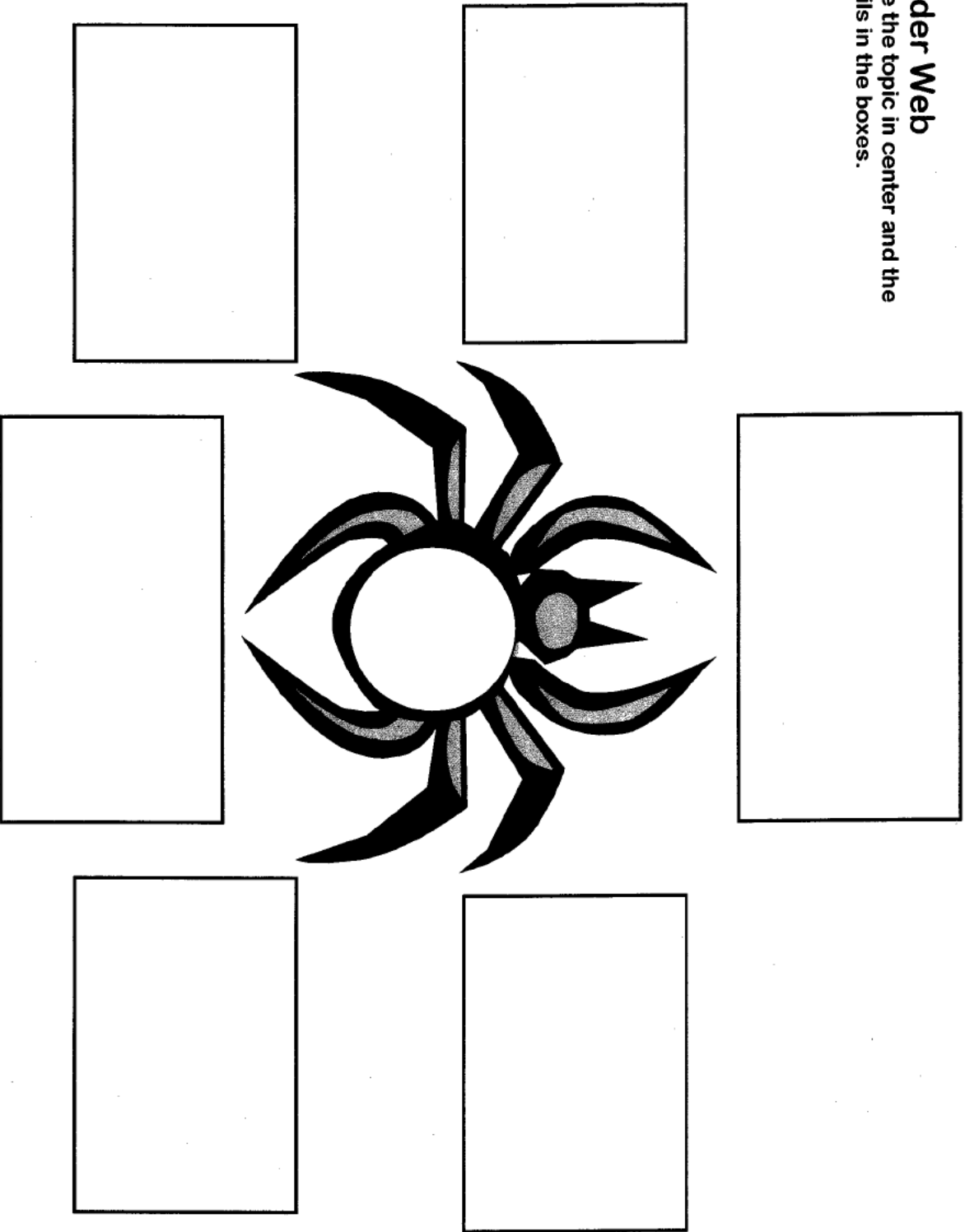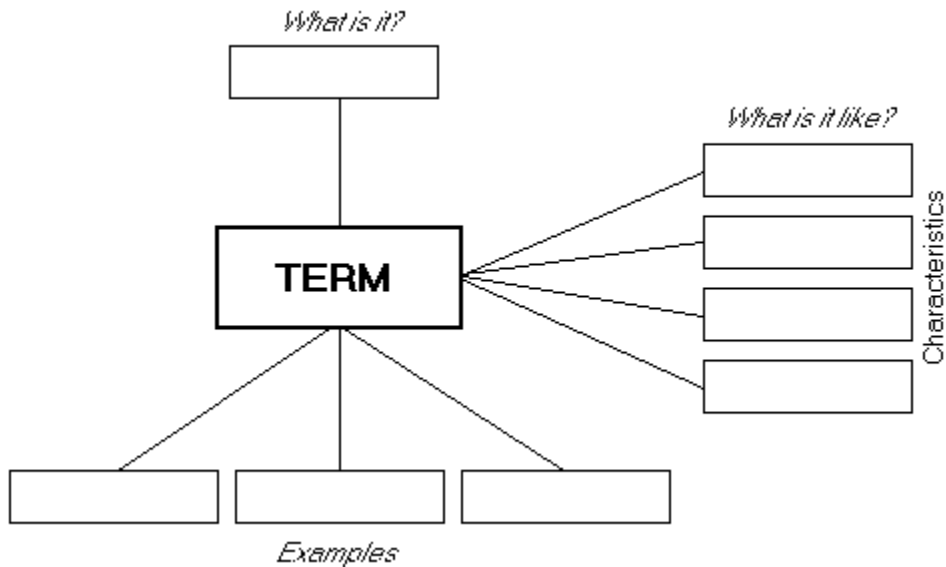ples to major and minor concepts. Sample word maps also help to organize information for answering objective test questions and essays.

There are 4 parts to a sample map: the term or concept is placed in a box in the middle of the page or note card. Directly above it is another box where the major category to which it belongs is written. To the right of the term or concept are series of boxes that indicates its essential characteristics. These boxes answer the question "What is it like?" Below the term or concept are a series of boxes that provide examples of the concept.

What is it?

What is it like?

TERM

Characteristics

Examples

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Sample Word Map – History Example:

What is it?

type of society

GESELLSCHAFT

What is it like?

specialization

rationality

individualism

impersonality

America Great Britain

Examples?

(D. Applegate, CAL)

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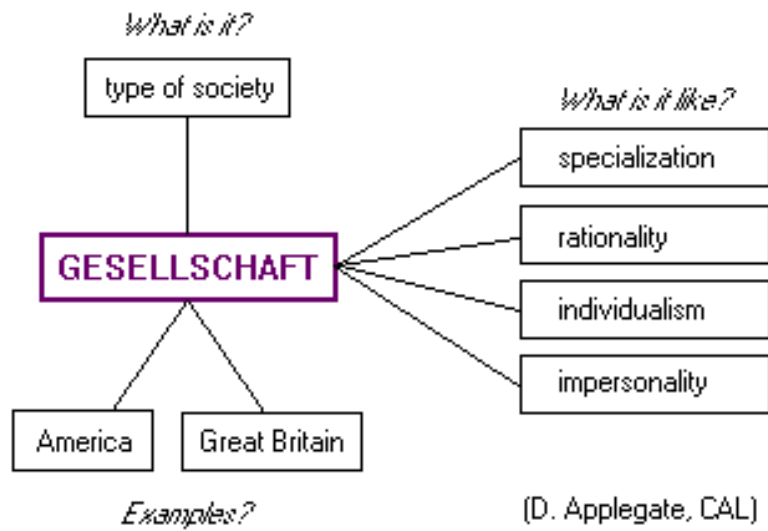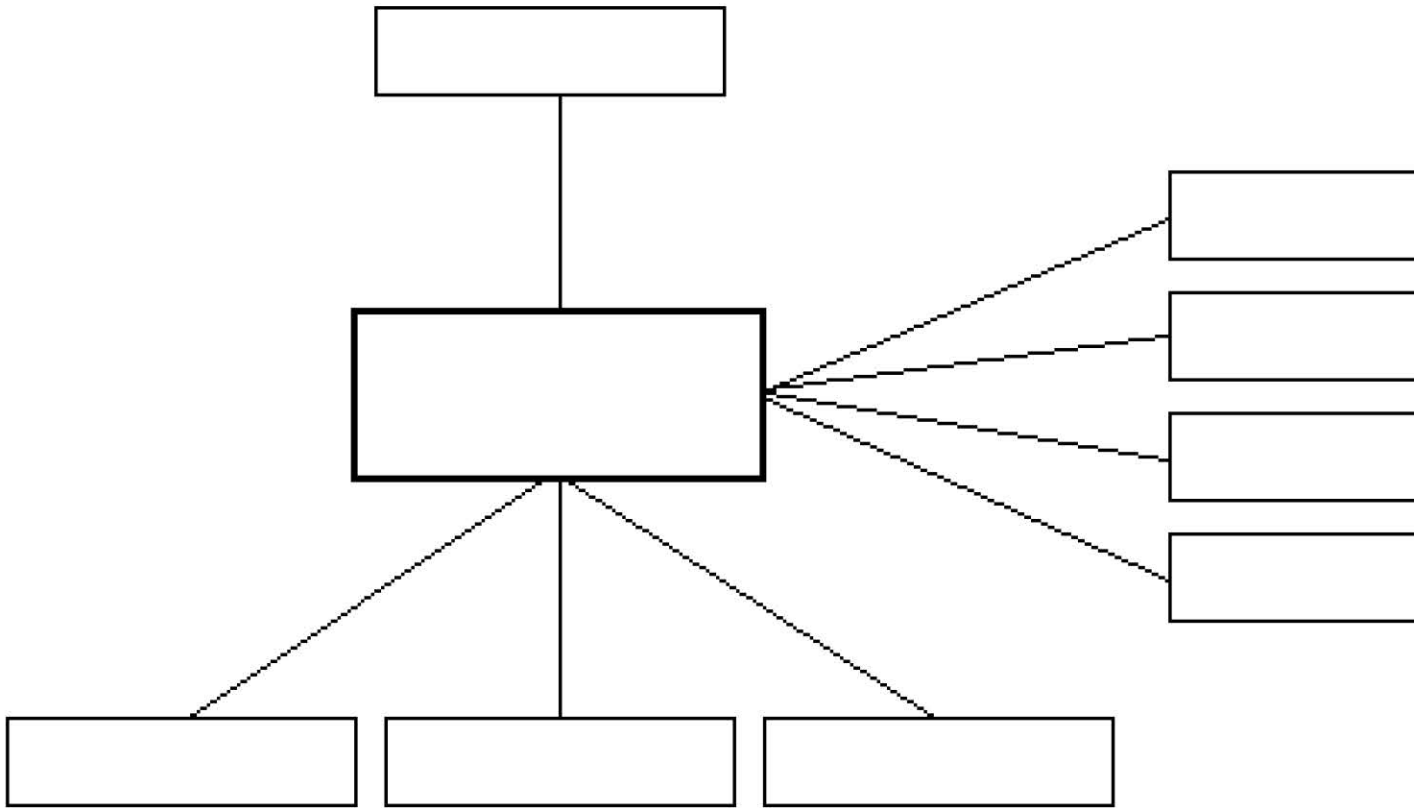
HUMAN INTERACTION OUTLINE ORGANIZER:

Designed to organize information about interactions between two people (e.g. Churchill and Stalin) or two groups of people (e.g. Israelis and Palestinians), this strategy outlines the goals, actions, and outcomes of culture contact. The top level identifies the goals of each group, the middle level summarizes the actions and reactions between the groups, and the bottom level lists the ultimate outcomes of the interactions.

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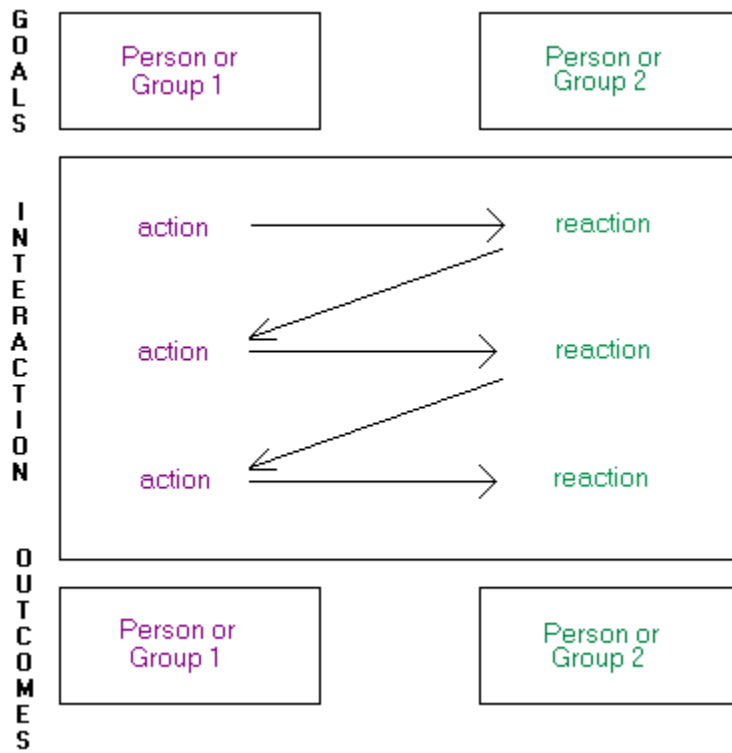
Human Interaction Outline – History Example:

AZTEC EMPIRE   SPANISH CONQUISTADORS

GOALS

self-preservation	search for riches and territory

INTERACTION

welcome strangers →	kidnap and kill Motecuhzoma
expell Spanish from capital	unite Aztec enemies
resist	capture capital Tenochtitlan

OUTCOMES

loss of empire depopulation	control of Mexico

(D. Applegate, CAL)

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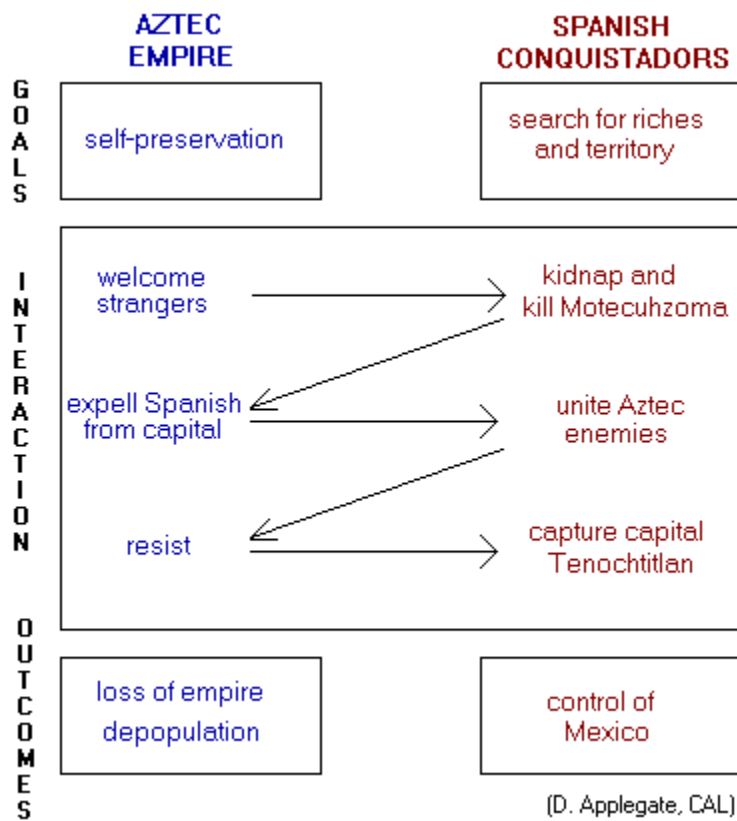
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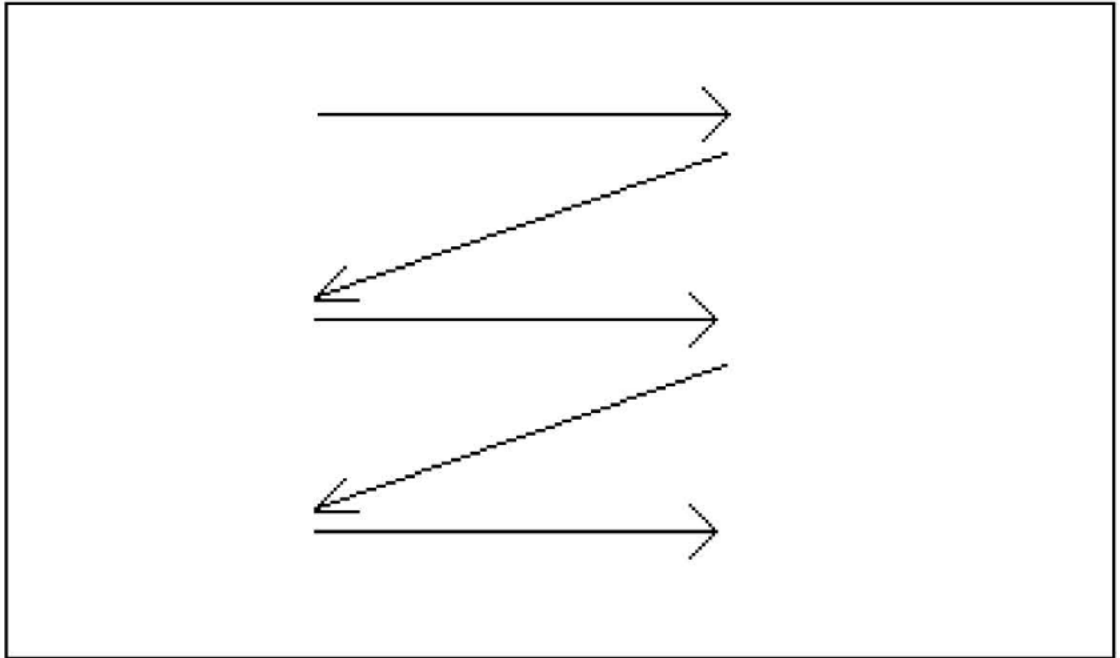
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PROBLEM SOLUTION OUTLINE ORGANIZER:

A problem-solution outline has three boxes for organizing information. The problem is identified in the upper box; this may be a "who", a "what", or a "why". In the middle box are written the attempted solutions to the problem and the results of each solution. The end result is summarized in the lower box.

PROBLEM
```
What
Who
Why
```

↓

SOLUTION
```
Attempted Solutions    Results
1                      1
2                      2
3                      3
```

↓

END RESULT

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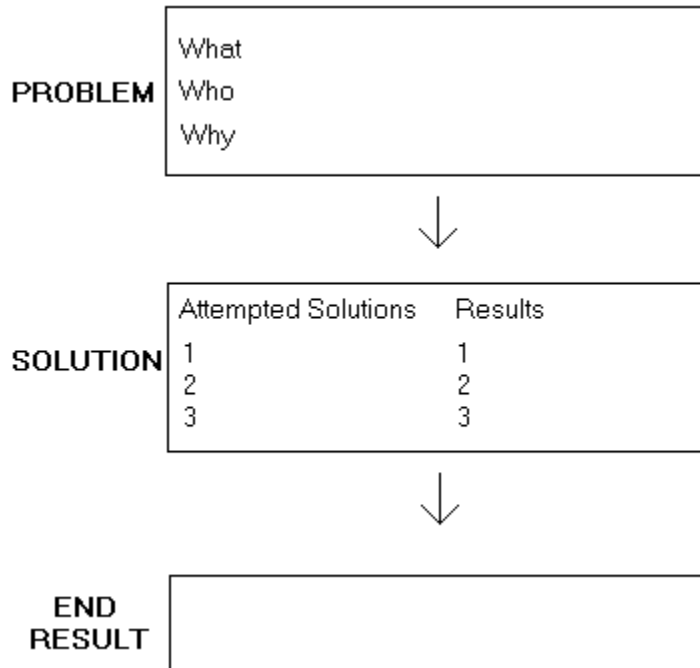
PROBLEM

```
┌─────────────────────────────┐
│                             │
│                             │
│                             │
└─────────────────────────────┘
```

↓

SOLUTION

```
┌─────────────────────────────┐
│                             │
│                             │
│                             │
└─────────────────────────────┘
```

↓

END
RESULT

```
┌─────────────────────────────┐
│                             │
│                             │
└─────────────────────────────┘
```

WRITTEN OUTLINE ORGANIZER:

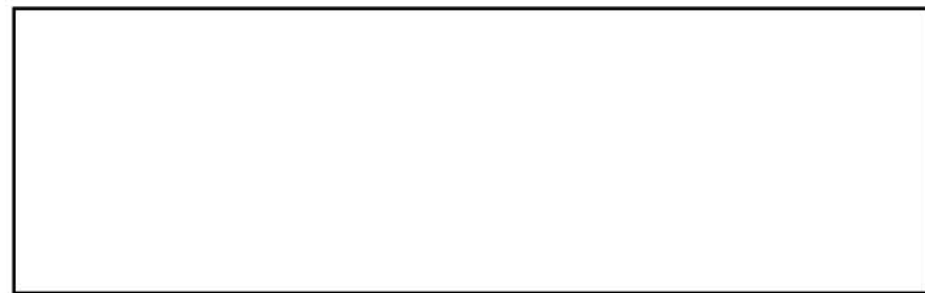Use the major headings in the text chapters to form the major sections of the outline. Each major section of the outline should cover one major topic. Arrange the information within the section from most inclusive to most exclusive, indenting the information each time the level of inclusiveness changes. All of the levels may or may not be used. The most common symbols used in outlining are Roman numerals, upper and lower case letters, and numbers. Other symbols may be added or substituted to make a less formal outline. Short phrases, symbols shorthand, and abbreviations may be used to record information in the outline.

ORIGINS OF AGRICULTURE

I. AGRICULTURE COMPARED TO HUNTING-GATHERING
   A. Advantages of Agriculture
      1. More efficient use of land
         a. agriculture: 1 sq km supports 50 people
         b. hunting-gathering: 25-30 sq km support 5-6 people
      2. More stable food source through year (with storage)
      3. More free time in non-critical seasons

   B. Disadvantages of Agriculture
      1. Malnourishment
         a. farmers often deficient in protein
      2. Labor intensive in critical seasons
      3. High risk if crops/herds fail

II. IDENTIFYING DOMESTICATES IN ARCHAEOLOGICAL RECORD
   A. Plants
      1. Seeds are bigger in size
         a. example: teosinte to maize
         b. example: domesticated sunflower is at least 5 mm
      2. Seed coats are thicker
      3. Found outside natural range of distribution

   B. Animals
      1. Horns change in morphology
         a. example: sheep
      2. Body size changes
      3. Changes in coat or fur
      4. Age-sex distributions in skeletal collections
         a. few old males
         b. many slaughtered young males
         c. many old females
      5. Found outside natural range of distribution

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WRITTEN OUTLINE:

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I.
  A.
    1.
      a.
        (1)
        (2)
      b.
        (1)
        (2)
      c.
        (1)
        (2)
    2.
      a.
        (1)
        (2)
      b.
        (1)
        (2)
      c.
        (1)
        (2)
    3.
      a.
        (1)
        (2)
      b.
        (1)
        (2)
      c.
        (1)
        (2)
II.
  A.
    1.
      a.
        (1)
        (2)
      b.
        (1)
        (2)
      c.
        (1)
        (2)
    2.
      a.
        (1)
        (2)
      b.
        (1)
        (2)
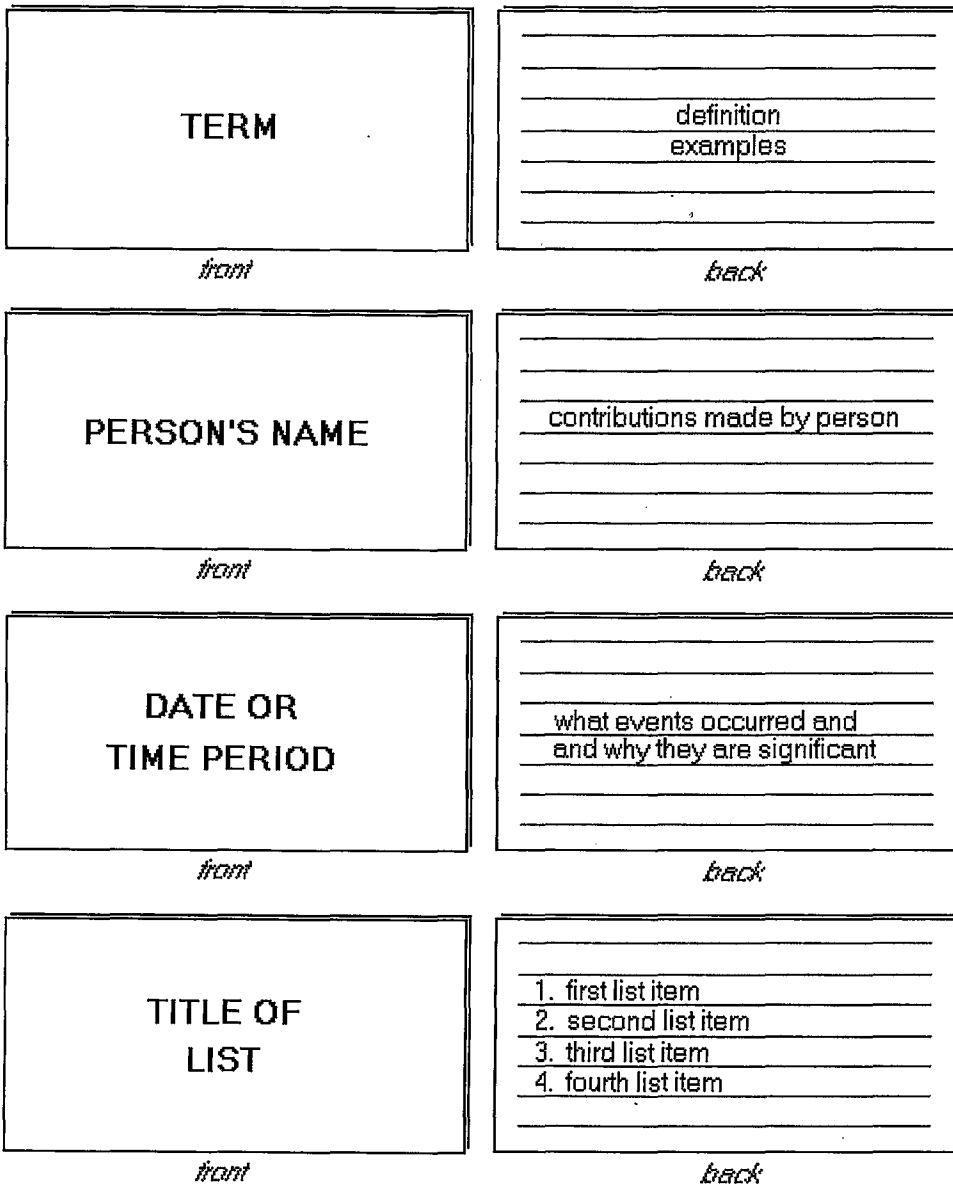   c.
        (1)
        (2)

OPINION CHART ORGANIZER:

An opinion chart is a matrix of rows and columns for organizing one's ideas about an event, a concept, or a person (e.g. theory of evolution, Roosevelt and the Depression). Opinion charts are not only used to organize information; they help one develop critical thinking skills and logically construct a convincing argument. For these reasons they are especially useful in preparing for interpretive essay exams. The first column of an opinion chart contains the areas in which the main topic will be evaluated. The second column summarizes information supporting the opinion. Columns and rows may be made as wide and high as needed. It is helpful to write a title for the chart.

RECENT U.S. FOREIGN POLICY

POLICY	OPINION	SUPPORT
Sending troops to SE Asia (60s - 70s)	against	- no a priori plan - incredible loss of life
Recognizing Communist China	for	- positive effect on US economy
Air strikes in former Yugoslavia	against	- no vital US security interests
Humanitarian aid in Somalia	for	- assistance to people
Military presence in Middle East	against	- lack of international support

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TERM	definition examples
front	*back*

PERSON'S NAME	contributions made by person
front	*back*

DATE OR TIME PERIOD	what events occurred and and why they are significant
front	*back*

TITLE OF LIST	1. first list item 2. second list item 3. third list item 4. fourth list item
front	*back*

Flash Cards:

Organization of paired information is accomplished using flash cards. One piece of information is written on the front of a card and an associated piece of information is written on the back. As such, one side of the card is used as a cue to remembering information on the other side. Flash cards are a versatile strategy and may be used for any subject of study. It is a good stategy for remembering paired information such as words and definitions, events and dates, people and accomplishments, and formulas and symbols. The strategy can be effectively combined with memory strategies such as visual elaboration, visual association, or peg words. Flash cards aid in preparation for both objective and subjective tests.

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Molarity M	$M = \dfrac{\text{\# moles of solute}}{\text{L of solution}}$
front	*back*

Boiling Point Elevation $\triangle T_b$	$\triangle T_b = K_b\, m$
front	*back*

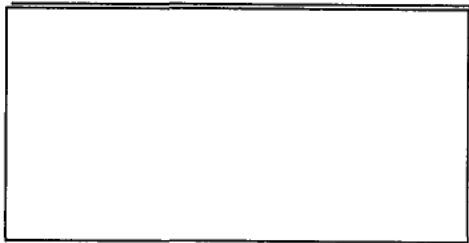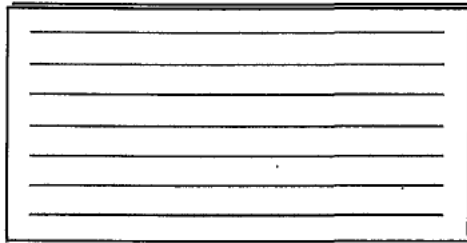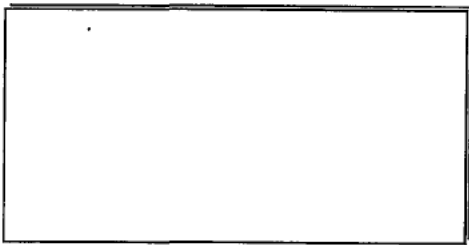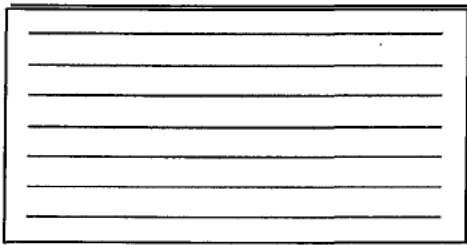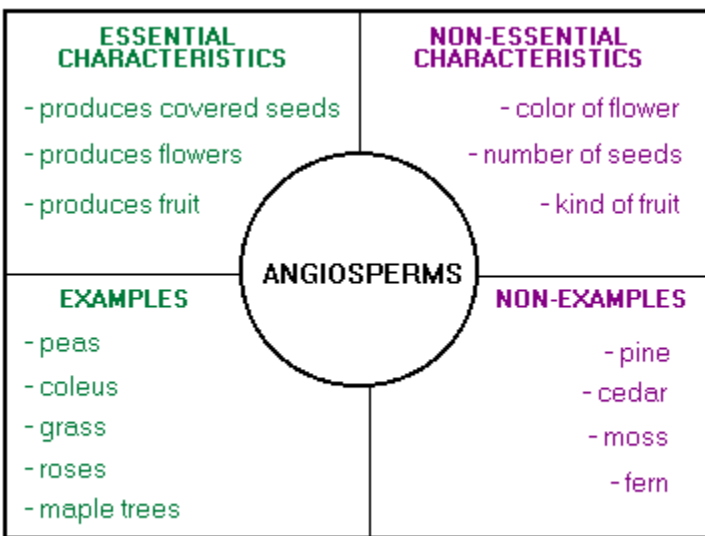| Osmotic Pressure π	$\pi = M\,P\,T$
front	*back*
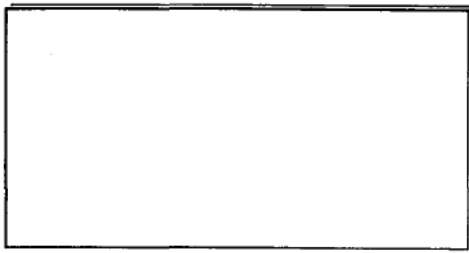
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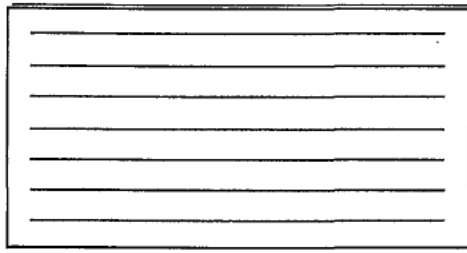
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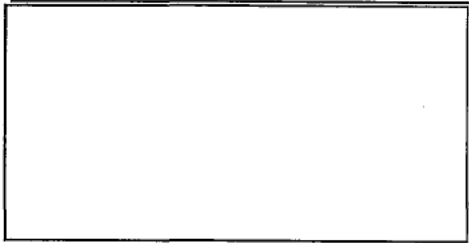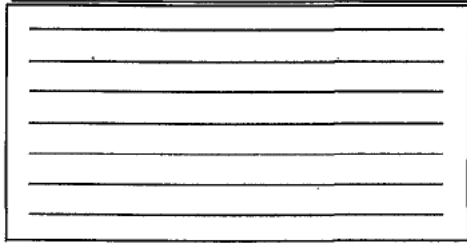
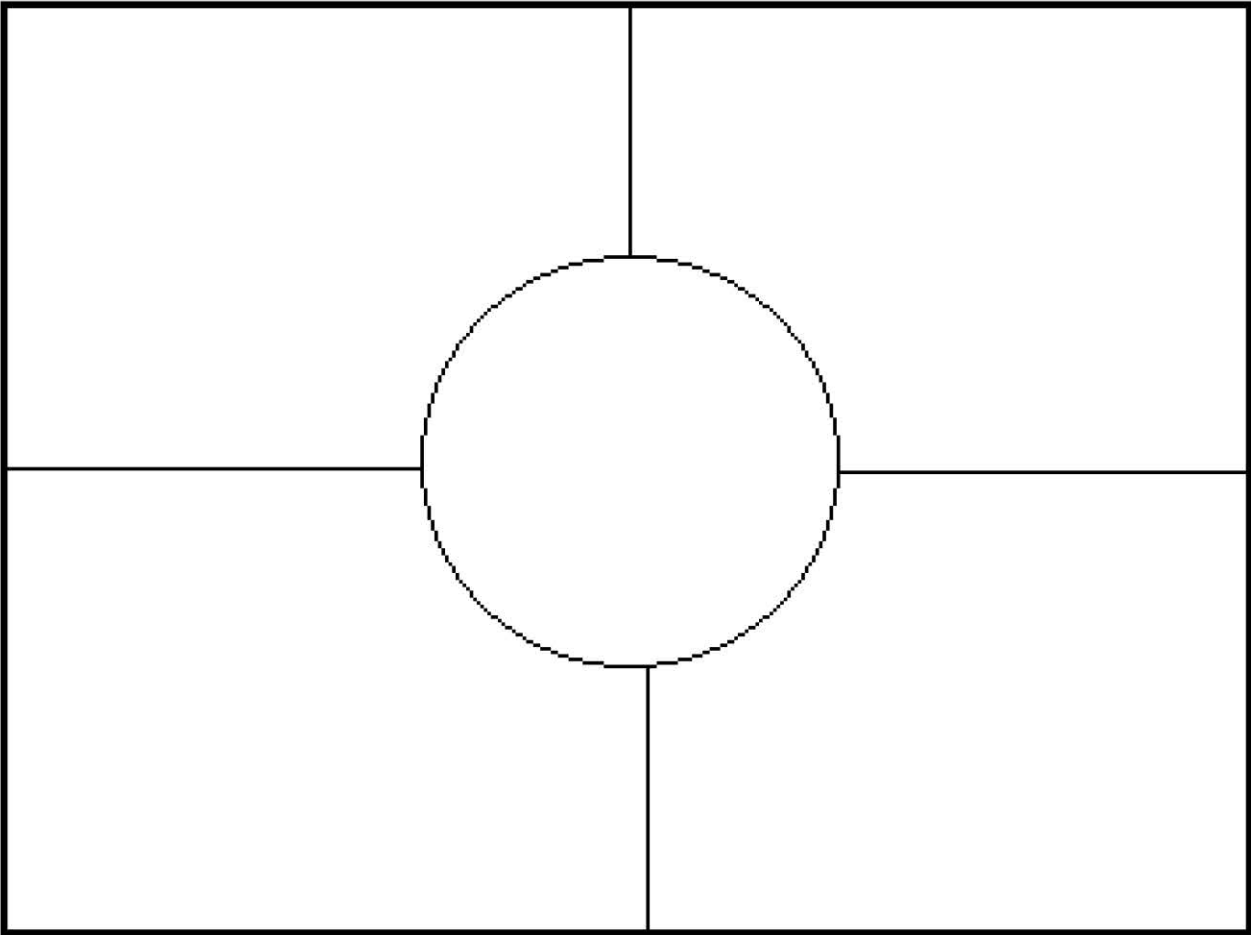front

back

front

back

front

back

FRAYER MODEL ORGANIZER:

The Frayer model is a four-cell box arrangement that summarizes the essential characteristics of and provides examples of a central idea, usually a thing or process. One advantage of the Frayer model is it gives characteristics and examples as well as non-characteristics and non-examples of the topic, helping students link the information to existing knowledge. This aids in correctly evaluating and answering objective test questions such as multiple choice and true-false. The top row of the Frayer box is for the characteristics of the central idea, and the bottom row is for examples. The right-hand column of the Frayer box is for characteristics and examples that illustrate the central idea, and the left-hand column is for characteristics and examples that do not illustrate the central idea.

ESSENTIAL CHARACTERISTICS	NON-ESSENTIAL CHARACTERISTICS
- produces covered seeds	- color of flower
- produces flowers	- number of seeds
- produces fruit	- kind of fruit
ANGIOSPERMS	
EXAMPLES	NON-EXAMPLES
- peas	- pine
- coleus	- cedar
- grass	- moss
- roses	- fern
- maple trees	

(REFERENCE)

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Main Idea Wheel

Main Idea

56
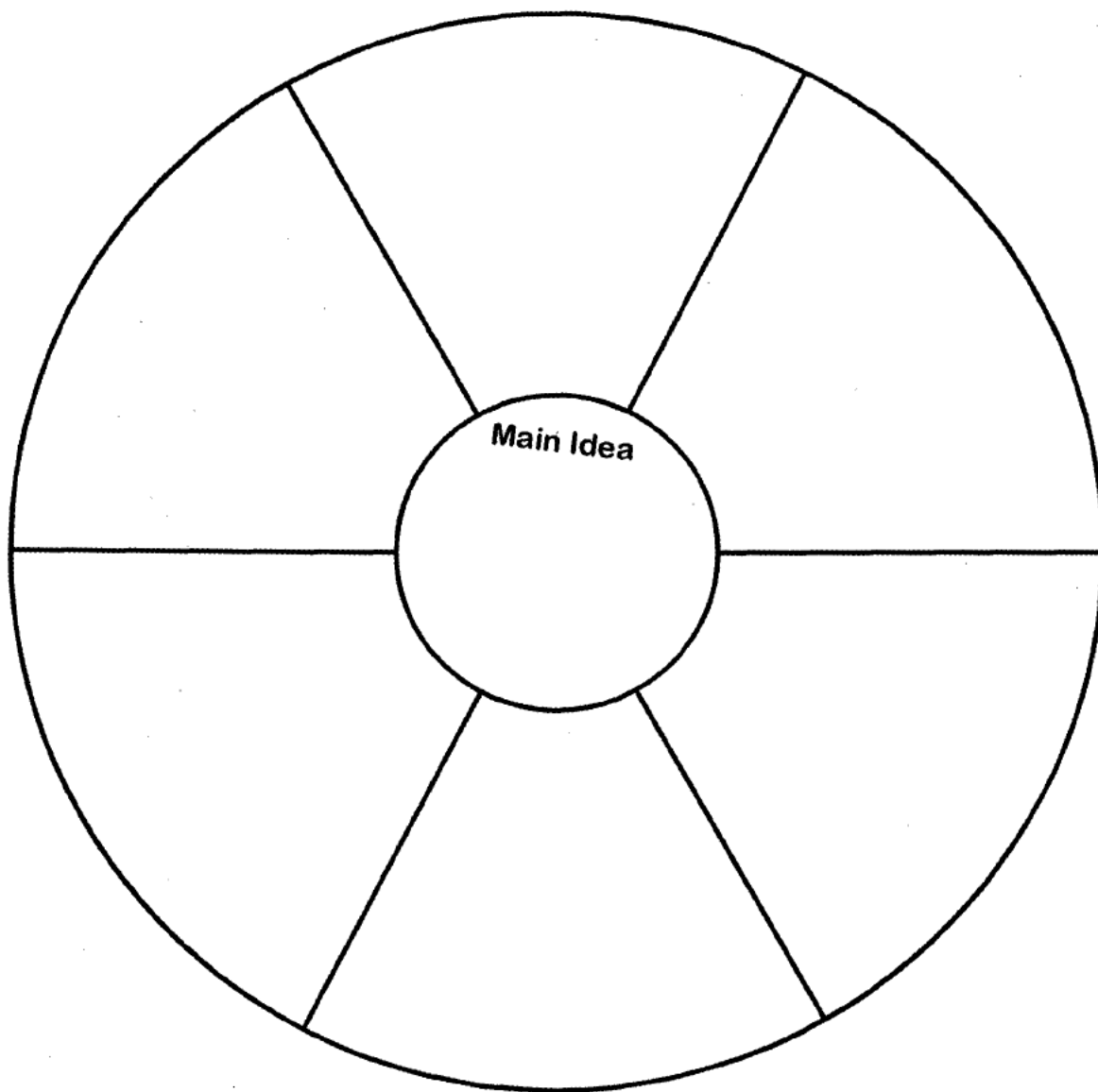
Making Inferences

Directions: Inferences involve drawing conclusions and making judgments based on facts and evidence. Write important details and facts in the boxes on the left. Write inferences about those important details in the boxes on the right.

Detail or Fact   **Inferences about the Fact**

Detail or Fact   **Inferences about the Fact**

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Name: _____   Date: _____   Period: _____

Observation Chart

Subject Being Observed	
Visual Details	
Sounds	
Smells	
Tastes	
Feel/Textures	
Condition, Duration, Function, Importance, Location, Value, Other...	

Name: _____   Date: _____

Keyword Searching

How to use search engines to help research your topic.

While researching your topic you will likely use a search engine. There are search techniques that can help you quickly find what you are looking for. In this case, we'll use Google to research a paper on Tybalt's revenge in *Romeo and Juliet*.

Terms Search – a word or string of words

Be specific in your use of keywords. For example, the term Romeo and Juliet will produce millions of results on Google. This is far too broad. Focus your search to fit the exact topic. For example, the terms Romeo and Juliet revenge Tybalt produce about 20,000 results. This is a much more manageable amount of information.

Write down four keyword terms for your topic.

Keyword terms	What do you hope to find with these terms?
1	
2	
3	
4	

Phrase Search – a string of words in quotation marks

Using quotation marks around a phrase will produce that exact string of words. This is helpful if you know precisely what you need. For example, the phrase "Tybalt kills Mercutio" produces about 1,500 results. This is helpful if you need to find where certain lines in the play are found.

Write down four phrases for your topic.

Phrases	What do you hope to find with these phrases?
1	
2	
3	
4	

For more information on searching visit: http://www.google.com/help/basics.html

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Name: _____ Date: _____ Period: _____

SQ3R

Topic or Story Title:

Survey	Question	Read	Retell