


Building Understanding

Now that you have gathered lots of interesting information and ideas to answer your research question(s), it is time to take a closer look.

First determine if you have enough data. Are you pretty happy with what you have discovered so far? Have you examined your topic from different points of view? Have you kept accurate notes and referencing? Do you have any conflicting data? Is all your data on topic?



STOP and deal with any problems first.

You will be processing or thinking hard about your notes to build understanding.

Analyze

- sort and compare or classify
- look for patterns and trends
- find and examine relationships or connections
- determine cause and effect
- identify and predict impact
- interpret, infer, predict
- identify perspectives

Synthesize

- develop generalizations and report
- consider alternatives and make a judgment or prediction
- draw conclusions
- make decisions
- gain perspective and develop an argument or a thesis
- explore solutions and solve a problem or construct a new hypothesis

Processing Strategies

Make Connections


Reread your notes. Use highlighters, sticky notes, and index cards to help you keep track of your thinking (see page 12).

Organize your Thinking

Rework your highlighted notes and connections into an organizer to help you analyze it. As you organize and rearrange your data, you are helping your brain make new connections.

Conference

Set up a time with group members, your teacher, or your parents. Share your findings and test. Listen, respond, and question. Reflect on what was learned, what you still want to know, what was successful, and what you would like to improve.



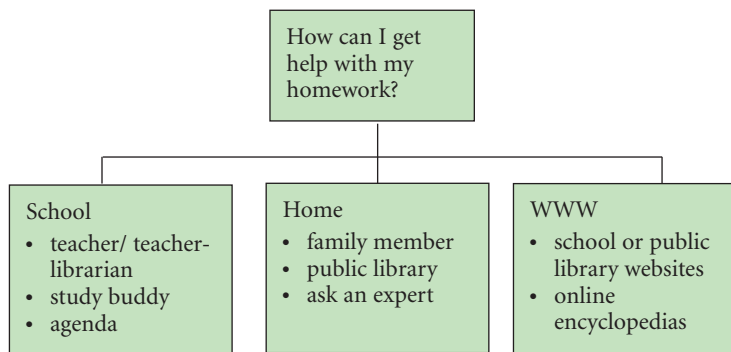
See pages 19 to 21 for examples of visual organizers. Ask your teacher or teacher-librarian for blank organizers, find some on the Internet, or design your own.

Using Graphic Organizers

Organizing

Branch Diagram

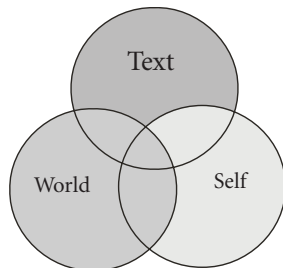
- to break categories into smaller parts
- to graph family trees
- to plan organizational charts



Comparing

Venn Diagram

- to examine details
- to make comparisons
- to organizer similarities and differences
- connect to what you read



What's Different? What's the Same?

- to define criteria to make a vivid comparison

| Comparing: Velcro and Burrs | | | |
|--|--|--|---|
| Comparison Criteria | What's Different? | What's the Same? | What's Different? |
| Origin | <ul style="list-style-type: none"> • man made | | <ul style="list-style-type: none"> • natural occurrence |
| Purpose | <ul style="list-style-type: none"> • to hold things together | <ul style="list-style-type: none"> • to attach things | <ul style="list-style-type: none"> • to attach seeds to animals or people for distribution |
| Structure | <ul style="list-style-type: none"> • 2 pieces: 1 with hooks, 1 with loops • must be pressed together • pulls apart easily • doesn't break up | <ul style="list-style-type: none"> • small hooks • attaches well | <ul style="list-style-type: none"> • 1 piece with hooks • attaches without pressure • hard to pull off • breaks apart |
| Conclusion: The inventor of Velcro probably studied burrs to get ideas for his invention. | | | |

Ordering

Series Line or Time Line

- to visualize a series of events
- to chart events in a story, novel, or film

Try creating two series or time lines to discover the relationships during a period of history.

Evolution of Cell Phones



Making a Decision

T Chart

- to break down ideas
- to collect and organize data

| Topic: Video Games | |
|---|---|
| That's Bad | That's Good |
| <ul style="list-style-type: none"> • take up lots of time • exercise only hands • produce Couch Potatoes • seem addictive • violent themes • stereotyping | <ul style="list-style-type: none"> • very entertaining • apply strategic thinking • can incorporate body movement • exercise joystick skills (used in robotics, surgery) • remote experiments (e.g., Mars) |

Drawing Conclusions

Cross-Classification Chart

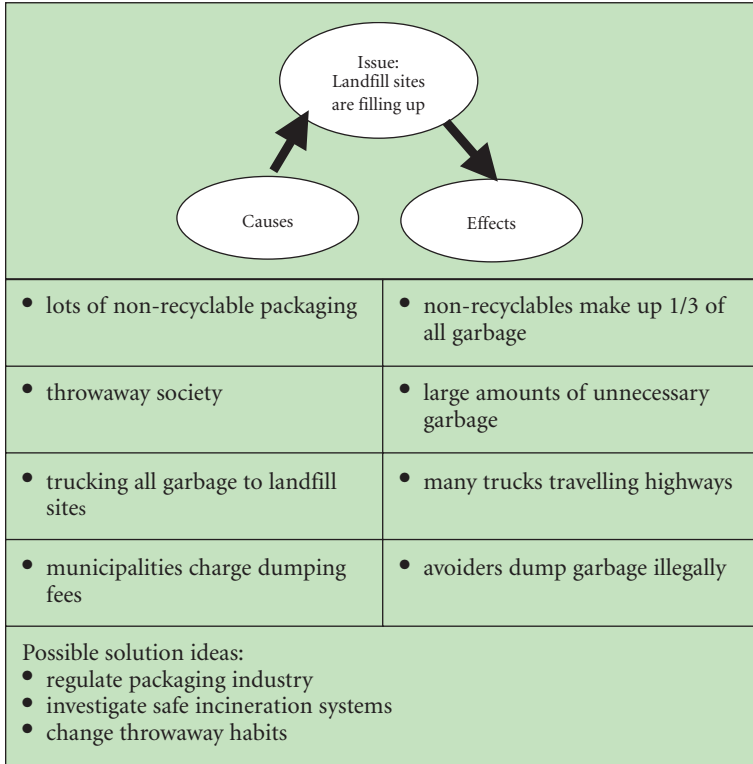
- to sort facts and find similarities
- to classify data and evaluate
- to make decisions or draw conclusions

| Cross-Classification Chart | | | | | | | | |
|--|------------|------|----------|----------|----------|--------|--------------------|---------------|
| What has been the impact of major tropical storms over the last century? | | | | | | | | |
| Group Dates | Storm Name | Date | Category | Duration | Rainfall | Deaths | Evidence of Damage | \$\$\$ Damage |
| 1900–1919 | | | | | | | | |
| 1920–1939 | | | | | | | | |
| 1940–1959 | | | | | | | | |
| 1960–1989 | | | | | | | | |
| 1990– | | | | | | | | |

Finding Solutions

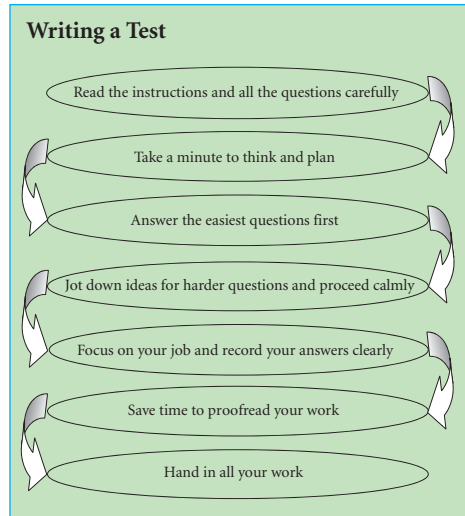
ICE Diagram

- to explore a problem, and its causes and effects
- to propose a solution to an issue



Flowchart

- to sequence historic events
- to plan a course of action
- to demonstrate a mathematical/scientific process
- to write instructions



Reviewing for Study

Ranking Ladder

- to break ideas down into smaller and smaller pieces
- to demonstrate order or rank
- to find relationships
- to review information to study for tests

