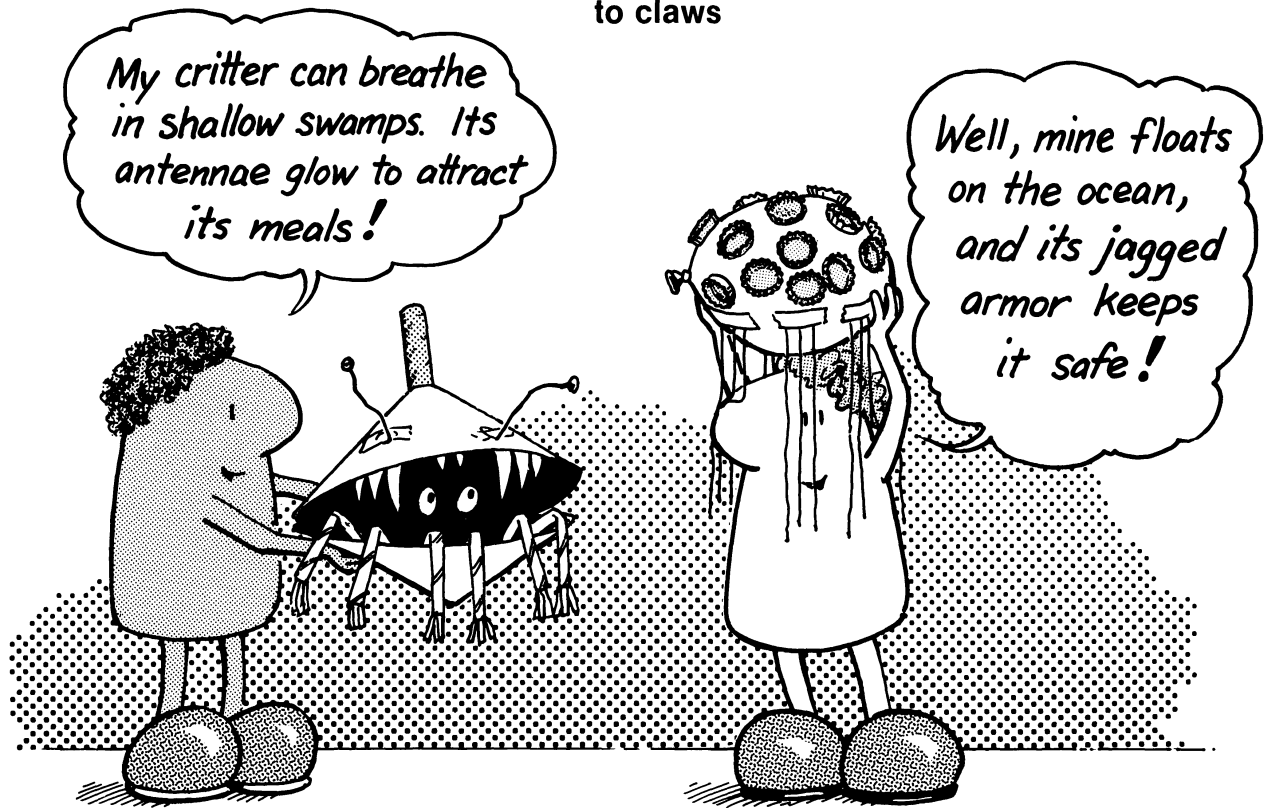


ANIMAL SURVIVAL

from camouflage
to claws



SCIENCE WITH SIMPLE THINGS SERIES

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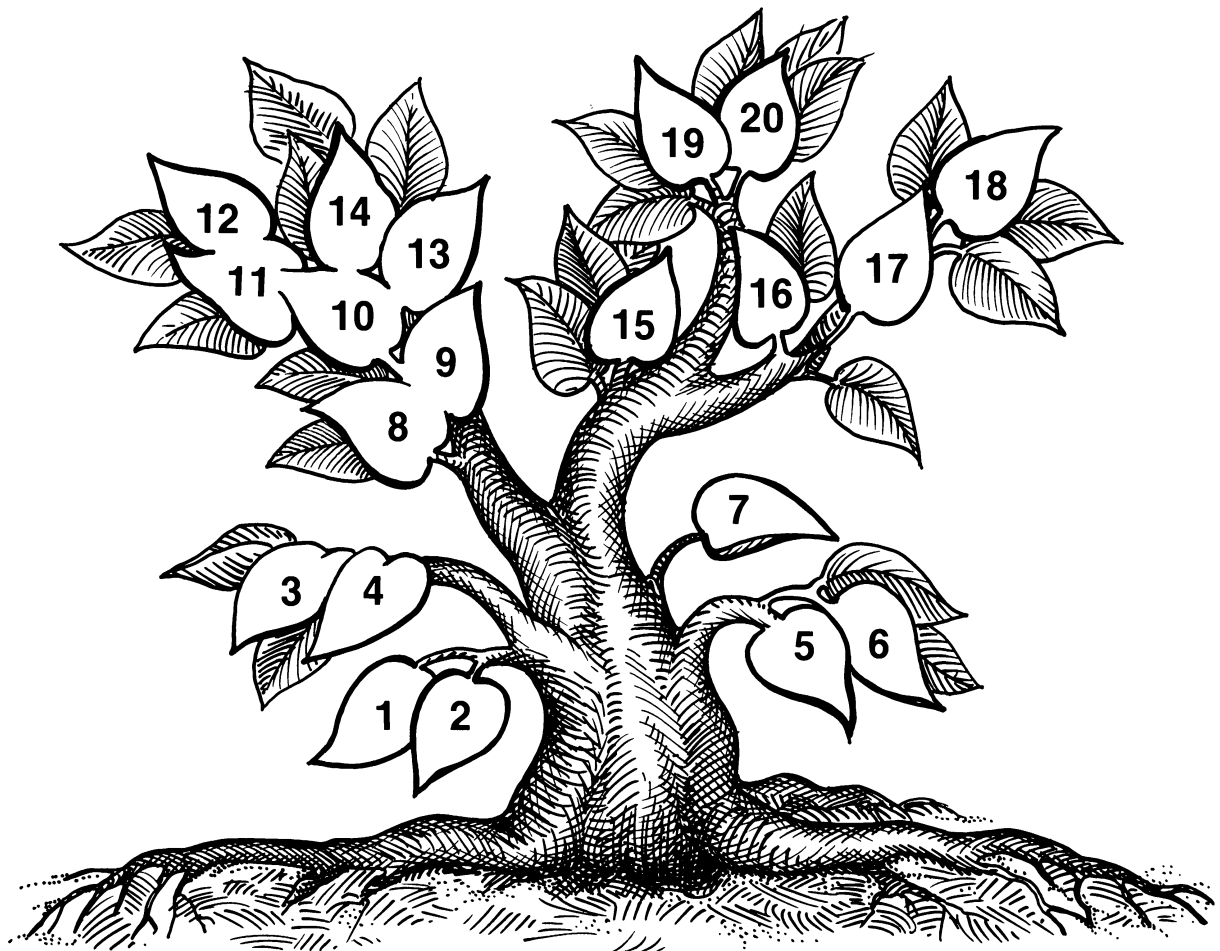
Sequencing Activities

This logic tree shows how all the activities in this book tie together. In general, students begin at the trunk of the tree and work up through the related branches. Lower level activities support the ones above.

You may, at your discretion, omit certain activities or change their sequence to meet specific class needs. However, when leaves open vertically into each other, those below logically precede those above, and should not be omitted.

When possible, students should complete the activities in the same sequence as numbered. If time is short, however, or certain students need to catch up, you can use this logic tree to identify concept-related horizontal activities. Some of these might be omitted, since they serve to reinforce learned concepts rather than introduce new ones.

For whatever reason, when you wish to make sequence changes, you'll find this logic tree a valuable reference. Parentheses in the upper right corner of each worksheet allow you total flexibility. They are blank so you can pencil in sequence numbers of your own choosing.




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Gaining a Whole Perspective

Science is an interconnected fabric of ideas woven into broad and harmonious patterns. Use extension ideas in the teaching notes plus the outline presented below to help your students grasp the big ideas — to appreciate the fabric of science as a unified whole.

Use a field guide to **identify birds** in your area. Keep your observations in a journal.



You are leading a human expedition to explore a nearby star system. **Design a space ship** that will enable you to survive the 30 year round trip.

from the Botany Department:

You know how animals survive. What about plants? Do some library research on **plant adaptations**.

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Find out all you can about one of these creatures **Report on** its special **survival strategies**:

octopus	opposum	hippopotamus
squid	lady bug	flatfish
giraffe	mongoose	cuttlefish
elephant	kangaroo	chameleon

Brainstorm a list of at least 20 **inventions and discoveries** that have both helped and harmed the ability of humans to survive on this planet. Then order these technologies, ranking positives at the top and negatives at the bottom.

helpful
↕
harmful

Find out what a **naturalist** does and **write a job description**. How would you like to have such a job?

Make a collage of natural browns from sticks, dried leaves, grasses, rocks and other small objects you find in nature. Include as much color variation as you can find — tints and shades of brown, yellow browns, browns toward red and even blue.

Review / Test Questions

Photocopy these test questions. Cut out those you wish to use, and tape them onto white paper. Include questions of your own design, as well. Crowd them all onto a single page for students to answer on their own papers, or leave space for student responses after each question, as you wish. Duplicate a class set, and your custom-made test is ready to use. Use leftover questions as a class review in preparation for the final exam.

activity 1

Describe one of your school textbooks using complete sentences. Include its color, size, shape and style, and your personal feelings about it.

activity 2

You are a newspaper reporter who has just seen a UFO. Write a short report for the bureau chief. Make it factual and believable.

activity 3

Compare and contrast your hand with your foot.

activity 4

Look at the clock in your room.

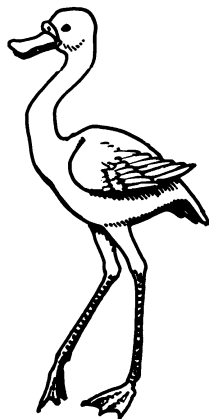
- Write an observation about this clock.
- Write an hypothesis about this clock.

activity 5

You are an animal that lives among sharks in the ocean. Draw a body that helps you escape being eaten. Write about how you survive, using complete sentences.

activity 6

Where does this bird likely live, and how does it eat? Explain.



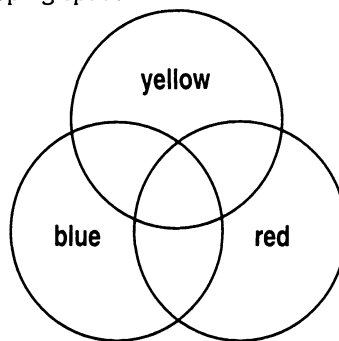
activity 7

Imagine you are a clever rabbit. A coyote has come between you and the safety of your rabbit hole.

- What is your first response – to escape or confuse? Explain in detail.
- If your first response fails, what else can you do?

activity 8

Write the correct color in each overlapping space.



activity 9

If you were painting a landscape, how would you mix ...

- A shade of green?
- A tint of brown?

activity 10

Complete each color formula using these letters: (The first is given as an example.)

- B = blue
R = red
Y = yellow
W = white
Bk = black

Orange: R + Y

Shade of Green: ___ + ___ + ___

Shade of Brown: ___ + ___ + ___ + ___

Light Grey: ___ + ___ + ___

Pale Pink: ___ + ___ + ___

activity 11

Lizards tend to be colored brown, while frogs are colored green. How can you explain this difference in coloration?

activity 12

You are an animal that survives on the school grounds by hiding. What is your most adaptive color? Explain.

activity 13

In England during the industrial revolution, factories burned so much smoky coal that the countryside gradually became darker over a long period of time! How do you think the moths in this area responded to their slowly darkening environment?

activity 14

Imagine you are an insect.

- Are your chances for survival improved if you mimic a corn flake? Explain.
- Name something better to mimic. Explain your choice.

activity 15

If a bee stings you and then dies, what good did its warning do?

activity 16

Animals make sounds for many reasons. List four.

activity 17

Reindeer have antlers. Discuss trade-offs for this type of protection.

activity 18

Support both of these statements:

- Cheetahs can outrun humans.
- Humans can outrun Cheetahs.

activity 19

a. Circle ONE habitat:

swamp desert forest ocean beach

b. Circle ONE survival strategy:

protective covering speed
warning colors mimicry camouflage

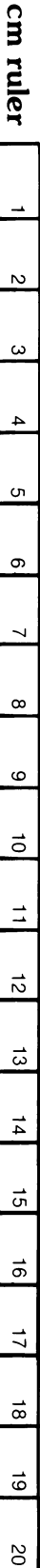
c. Draw a fantasy animal that survives under the conditions you have circled. Explain how it gets food and defends itself.


d. Discuss trade-offs. Explain some disadvantages to your animal's design.

activity 20



Think of behaviors or structures that help different animals survive. Make the list as long as you can.

TELL ME CLEARLY




1 Take off your shoe and put it on your desk . . .  . . . Fill in each box with words that describe your shoe.

A. COLOR	B. SIZE
C. SHAPE AND STYLE	D. FEELINGS ABOUT SHOE

2 Describe your shoe in greater detail. Write **COMPLETE SENTENCES** in each box.  

<p>A. Write more about COLOR: Is there a mixture (<i>blue-green, yellow-green</i>)? Are there patterns (<i>stripes, dots</i>)? Do you notice different shades (<i>light, dark</i>)?</p>	<p>B. Say more about SIZE: Measure your shoe with this centimeter ruler. Compare it to something familiar (<i>As big as a hamburger?</i>)</p>
<p>C. Be descriptive about SHAPE and STYLE: (<i>Athletic shoe or boot? Laces or velcro fasteners? High top? Rubber toe? Left or right?</i>)</p>	<p>D. Amplify your FEELINGS about your shoe: (<i>My only shoe; wonderful shoe; hand-me-down shoe, etc.</i>)</p>

3 Now write a totally wonderful and detailed description of your shoe. Use all your new observations about **color, size, shape and style** and **feelings**.



Objective

To sharpen observation and communication skills. To enable students to express themselves at higher levels of thought.

Lesson Notes

1. Things to notice about your shoe, any shoe, generate an endless array of categories. There is nothing special about these particular criteria. (You may change them if you wish!) These categories only define an entry level into the observing process, a level that will challenge and exercise young minds and help them to grow.

2. The broad task of observing your shoe is broken into specific things to notice, both about your shoe and about yourself. (Modern physics places great emphasis on this dynamic interaction between the observer and the observed.) What we are seeking here is an expansion, first of what the observer sees, then an accurate communication of that expanded information.

3. The whole idea is to carry students beyond their first idea, their first response, into deeper levels of thought and self expression. If your students habitually respond with one or two word descriptions that require little or no thought, where is the possibility of real intellectual growth? How can they benefit from activities that require higher order thinking processes?

Answers

1. A one or two word response, the first idea that answers the question, is appropriate here, and here alone. This may be the skill level where many of your students now function. Let new growth begin!

2. Here comes the expansion of initial ideas. Demand complete, thoughtful sentences. Your students will rise to the level of your expectations.

3. This is a synthesis, a grand combination of previous ideas. Students must do more than rewrite the previous 4 sentences, stringing them together with conjunctions.

Write a model answer on the board, illustrating the kind of response you are trying to elicit. For example: These super-sleek blue with green striped, size 7 running shoes have brought me luck at all of our track meets.

Materials

None. Students supply their own shoes.