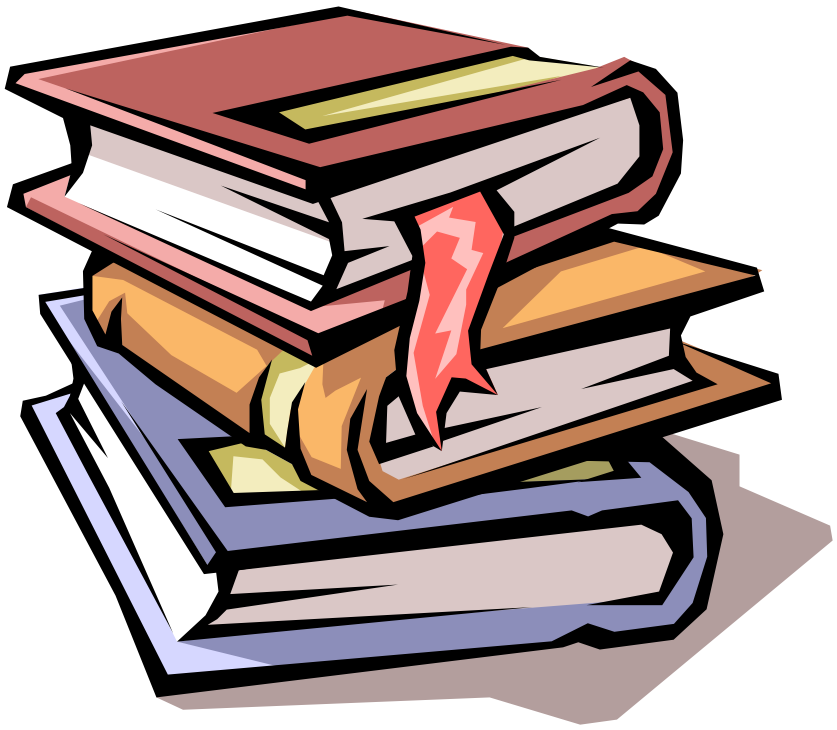
The Science Literacy Bulletin

Volume 1 Number 2 Special Edition November 2002

INCREASING SCIENCE AWARENESS ONE PERSON AT A TIME

A Family Approach to Science Literacy

Success in the Classroom Starts at the Library



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The Science Literacy Bulletin

Volume 1, Number 2
Special Edition
The Science Literacy Bulletin is published by The Science Literacy Project and Friends of FAMU Libraries to promote an understanding of the role of science literacy in daily life.

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The Science Literacy Project (SLP)

The mission of SLP is to promote an increase of science literacy in the general population by developing resources and programs, and by teaching, training, and supporting students and educators committed to learning about and understanding science. To reach this goal, the level of literacy in many different areas in our community must be addressed. Therefore, our mission encompasses the dissemination of information on a number of subjects and interests.

Planned Activities:

- ✓ Development of outreach programs and materials to be used by local community groups, K-12 educators, businesses and individuals interested in science literacy.
- ✓ Researching and writing descriptions of current scientific results targeted for the general public.
- ✓ Recruiting sponsors to support dissemination of information to those unable to pay for books or computers.
- ✓ Developing relationships with businesses and individuals throughout the community who see a need for an increase in literacy. After college science courses, the greatest predictor of science literacy is, "Informal Learning".
- ✓ Working closely with businesses to take advantage of the scientific expertise in the geographical region.
- ✓ Building a better, more scientifically literate work force for North Florida.
- ✓ Building a network of community literacy volunteers to help with the mission of the SLP.
- ✓ Developing science excursions for the general public.

The Science Plan

The Science Literacy Project is based on the concept that science education should be made available to everyone who is interested in it. Dr. Donavan Hall, Project Science Advisor, was a physicist and researcher at the National High Magnetic Field Laboratory, Florida State University, when this project was conceived.

Friends of FAMU Libraries, a non-profit organization that has community outreach as one of its goals, has agreed to publish the Science Literacy Bulletin. The organization has also included the Science Literacy Project as one of its outreach programs. The Friends agree with the philosophy of increasing science literacy in the community one person at a time.

The Science Literacy Project, along with community volunteers, would like to introduce you to our concept for combining science education, libraries and the business community. We call this concept THE BLUEPRINT SCIENCE PLAN. The main focus of the Plan is to unite science educators, businesses, libraries, and families into a partnership designed to increase the level of science literacy in the community.

THE BLUEPRINT SCIENCE PLAN will be discussed in detail in the December issue of the Science Literacy Bulletin.

Science Properly Understood

Donavan Hall, Ph.D.

Science is not some god truth before which all must genuflect. We do not need science to tell us certain things. We can learn to trust our common sense and wisdom to show us how to act with responsibility and integrity. For example, we do not need a scientific study to prove to us that the raw material and natural resources of this planet are limited, and that consumption of them without replenishing them will result in their eventual depletion. This is common sense. We do not need an expert to explain this to us. If we eat our cake, the cake is gone.

- Science is a way of studying nature. Science can help us understand problems; even solve them in some cases. Science cannot provide us with simple solutions on demand to every problem.

- Science is more important than its market value; science can help us understand problems and solutions that make no sense in market terms.

- By gaining an appreciation of the capabilities and limitations of science, the general public can better assess the claims made by sales people and corporate propagandists.

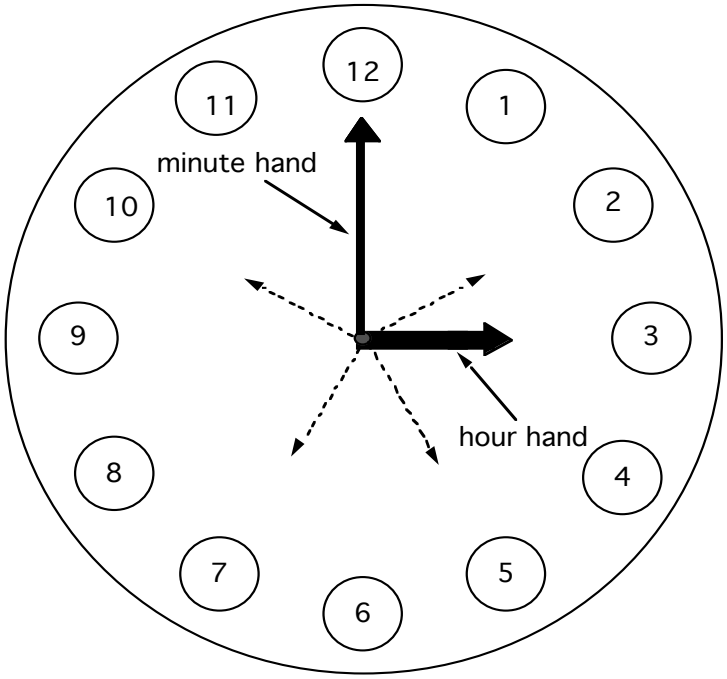
The Science Literacy Bulletin

The Science Literacy Bulletin is designed to assist in direct teaching to build cognitive structures necessary for learning. The relationships that will motivate children to learn need to be established. The only way that can be accomplished is to start now. No, we will not save all our children from all effects of environmental deprivation but we can certainly have an impact on some. Environmental deprivation includes forces of heredity and genetics, physical, social, emotional, financial, political issues, and other community factors.

Individuals who read this bulletin should review the activities and information found inside and share it with a child(ren) in your household. Working with your child(ren) will build the relationship required for cognitive learning. The articles entitled, For the Little Ones, Color Time, Understanding Numbers, Words to Practice and Science Words are designed to assist you with your efforts. Remember the effort that you put forth with your child(ren) will motivate them to seek achievement.

As role models and educators we must teach children, provide support, assistance and high expectations. Each person has resources that greatly influence achievement. Their potential should be nurtured.

For The Little Ones



The minute hand on the clock is sometimes called the long hand.

The hour hand on the clock is sometimes called the short hand.

The clock above shows the minute hand pointing at the 12 and the hour hand pointing at the 3. What time is it? **You are correct it is 3 o'clock.**

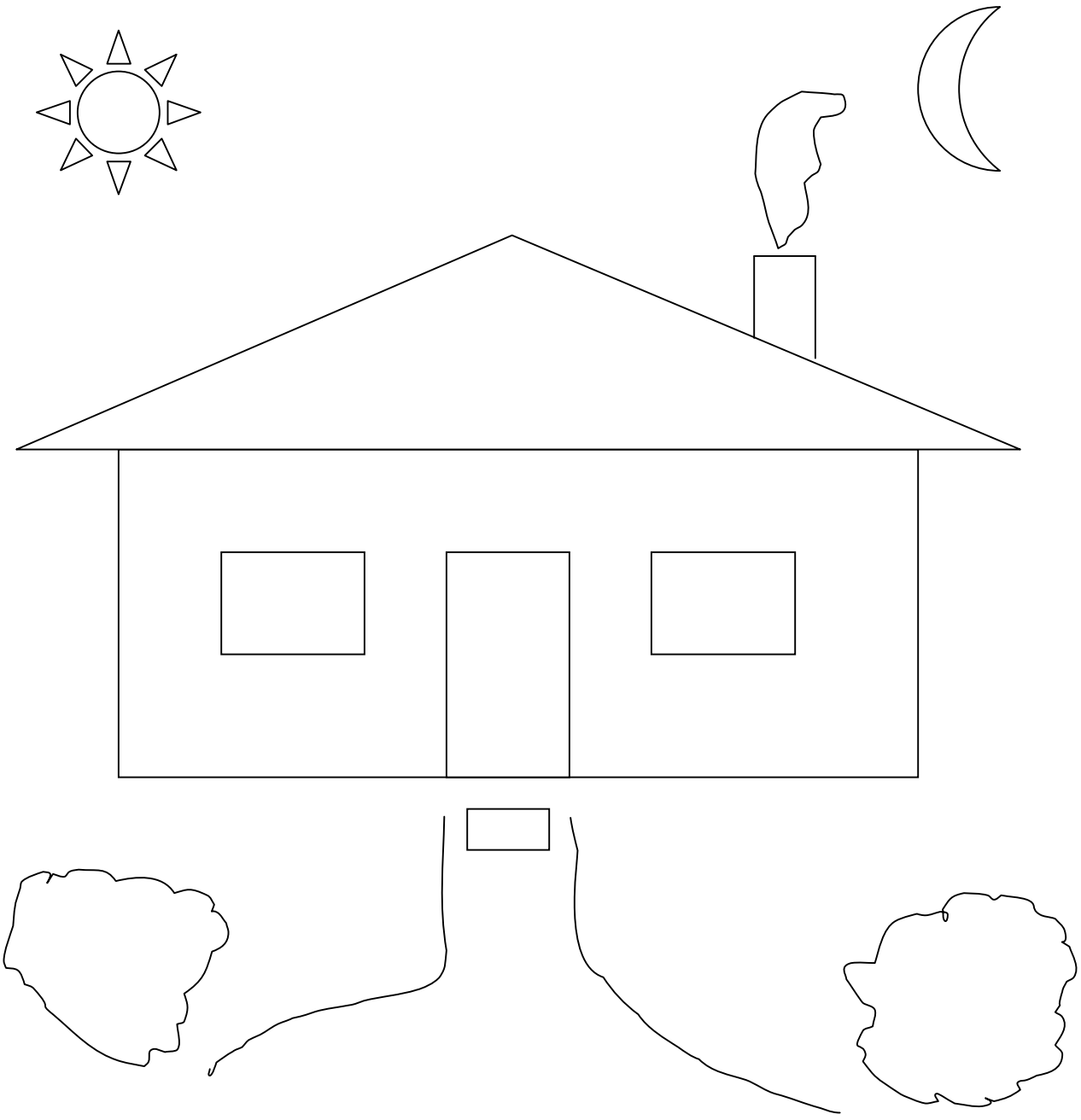
Color the number 2 circle and the short hand pointing to it red. What time would it be? _____.

Color the number 5 circle and the short hand pointing to it blue. What time would it be? _____.

Color the number 7 circle and the short hand pointing to it orange. What time would it be? _____.

Color the number 10 circle and the short hand pointing to it green. What time would it be? _____.

Color Time



Understanding Numbers

- **Ruler** - A straight or curved strip of wood, metal or other material with a smooth edge, used for guiding a pen or pencil for drawing and making measurements.

- **Decimal Number:** A number written using the base 10, such as 4.23, .23 and 104.23.

- **Fractional or Rational Number:** An expression that indicates the quotient of two quantities, such as 1/3, 3/4, 7/8 and 15/16.

The ruler is normally divided into the following units.

a. [Quarters] - One-quarter, two-quarters, three-quarters,

b. [Eights] - One-eight, two-eights, three-eights, four-eights, five-eights, six-eights, seven-eights,

c. [Sixteenths] - One-sixteenth, two-sixteenths, three-sixteenths, four-sixteenths, five-sixteenths, sixth-sixteenths, up to fifteen-sixteenths.

Note:

Remember four-quarters, eight-eights and sixteen-sixteenths equal one. When you order a pizza and open the box you will notice that the pizza is cut into slices.

If you open the box and there are four slices, it is cut up into quarters. The four slices equal one pizza.

If you open the box and there are eight slices, it is cut up into eights. The eight slices equal one pizza.

If you open the box and there are sixteen slices, it is cut up into sixteenths. The sixteen slices equal one pizza.

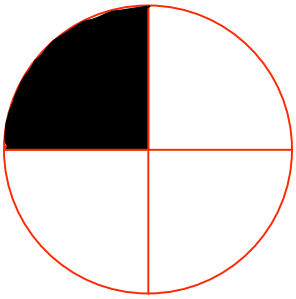
When looking at the ruler it is divided in much the same way. One inch can be divided into quarters, eights, sixteenths and so on.

Understanding Numbers

Since you are now starting to understand the concept of quarters, eights and sixteenths. We will explore it further and the importance of the ruler as it relates to decimal numbers and fractions.

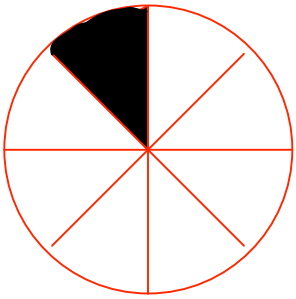
We have talked about how the pizza can be divided into quarters, eights and sixteenths.

Problem (1): The black filled area represents you eating one slice of pizza. Write a fraction number that represents how much of each pizza you ate.



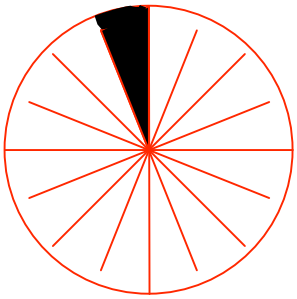
a.) pizza one

Answer:_____



b.) pizza two

Answer:_____



c.) pizza three

Answer:_____

Correct answers on page 15.

Problem (2): If you ate two slices of pizza from each of the above pizzas, write a fraction number that represents how much of each pizza you ate;

Answer:_____ **Answer:**_____ **Answer:**_____

Correct answers on page 15.

See the relationship between the number of slices in a pizza and fraction numbers.

Problem (3): What decimal number would represent how much pizza you ate in problem (2), a.), b.) and c.). Simply divide the number of pizza slices you ate by the number of pizza slices that were in the box.

Understanding Numbers

Solution: (pizza one):
How many slices of pizza did you eat? (answer = 2)
How many slices of pizza are in the box? (answer = 4)
The equation would read 2 divided by 4. See the equation below.

$$4\overline{)\,2}$$

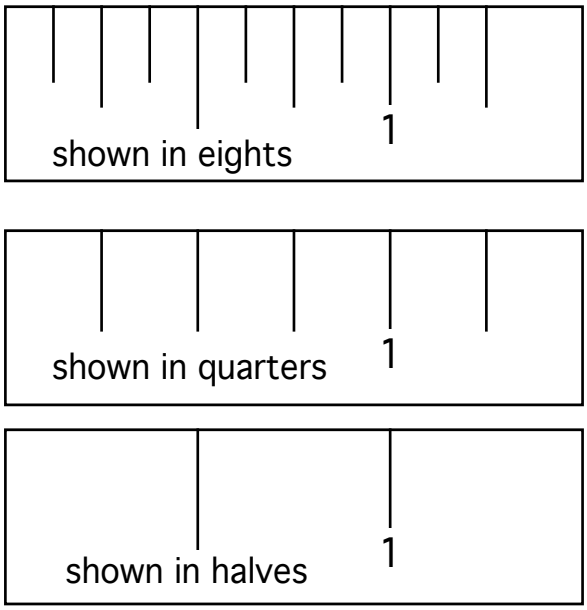
Use a scratch sheet of paper to solve the above equation. After you have solved the equation, check your answer using a calculator. On the calculator press the number 2 key, next press the division key (/), then press the number 4 key, and finally press the equal (=) key. The answer .5 should appear on the calculator display.

The decimal number .5 represents how much pizza you ate.

Find the decimal number that represents how much pizza you ate in Problem (2), b.), and c.).

Correct answers on page 15.

Sample Ruler



See the relationship between the ruler, fractions and decimal numbers.

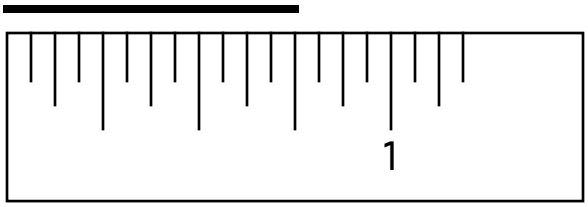
Looking at the ruler you can see that 4/8, 2/4 and 1/2 are all the same.

If you were measuring a line and it was 4/8 inch long, you could also write it 1/2 inch long.

Once you reach one inch on the ruler, the area between one inch and two inch is divided the same as the area between zero and one. Therefore, numbers are written 1and 4/8, 2 and 4/8 and 3 and 1/2.

Understanding Numbers

Problem (4): Find the length of the following line.



Correct answers on page 15.

Note:

When measuring a line keep in mind that measurements are usually written as follows; 1 and 3/16 inch and 2 and 3/4 inch. In practice it is better to write 1 and 3/16 rather than 19/16. However, both answers would be correct.

QUIZ:

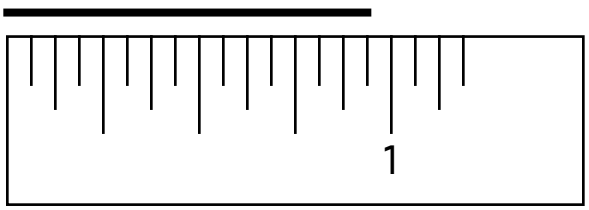
Write two decimal numbers. _____

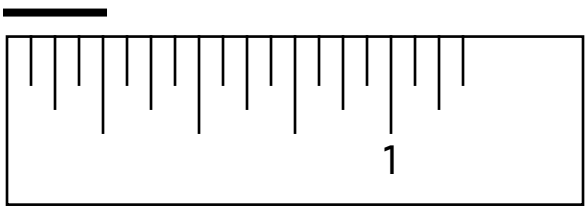
Write two fraction numbers. _____

Write the fraction number 3/4 as a decimal number: _____

Write the fraction number 1/4 as a decimal number: _____

What is the length of the following lines?





Answer: _____ **Answer**: _____

Words to Practice

ATOM
BEAM
CUBIC
DECAY
EARTH
FORCE
GALAXY
HEAT
INERTIA
JET
KITE
LAB
MASS

NOTE
OCTANE
PLANET
QUALITY
ROTATION
STAR
THERMAL
UNIT
VALVE
WATER
X-RAY
YIELD
ZEBRA

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The mission of Friends of FAMU Libraries is to assist the library in providing information and services to all library users by developing a strong support system, serve as a sounding board on library issues and as an advocacy group with the university administration.

Friends of FAMU Libraries support the library by:

Publicizing library programs • Fund-Raising • Serving as liaison to community organizations that can help provide publicity, volunteers, and leadership • Organizing committees to assist the libraries • Planning book and author events, lectures, and exhibits • Assisting with library projects.

Cut here Cut here

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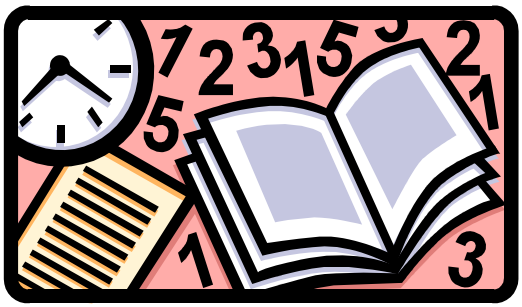

Science Words For the Month

Universe - All matter and energy, including the earth, the galaxies, and the contents of intergalactic space, regarded as a whole

Stars - A self-luminous celestial body consisting of a mass of gas held together by its own gravity in which energy generated by nuclear reactions in the interior is balanced by the outflow of energy to the surface, and the inward-directed gravitational forces are balanced by the outward-directed gas and radiation pressures.

Satellite - 1. Astronomy. A celestial body that orbits a planet; a moon.

- 2. Aerospace. An object launched to orbit Earth or another celestial body.

Celestial - Of or relating to the sky or the heavens: *Planets are celestial bodies.*

Boiling Point - The temperature at which a liquid boils at a fixed pressure, especially under standard atmospheric conditions

Answer Key:

Problem (1) Answers: a.) 1/4, b.) 1/8, c.) 1/16
Problem (2) Answers: a.) 2/4, b.) 2/8, c.) 2/16
Problem (3) Answers: a.) .25, b.) .125
Problem (4) Answers: 12/16, 6/8, 3/4 all would be correct

The Science Literacy Project

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Special thanks to:

Flossie M. Byrd, Ph.D.
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