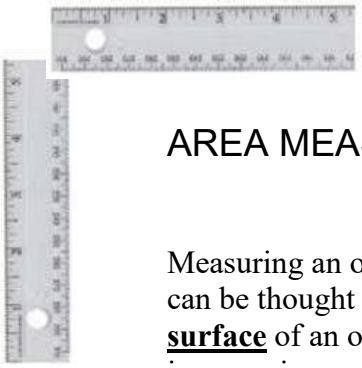

AREA MEASUREMENT

Name_____ Hour _____/14

Measuring an object's area is very different than simply measuring a single line. Area can be thought of as **the "skin" of the object**. It is a way of measuring the **entire surface** of an object. An easy way of thinking about it is to imagine wrapping an object in wrapping paper without letting the paper overlap itself anywhere.

In this lab, you will be doing just that. You will be finding out how many square centimeters it takes to cover wood blocks completely and with no overlap. When measuring the area of objects, the unit label can be written in two ways:

- Square units or…
- Units^2

The units used in this lab will be cm^2 and in^2. If you were trying to find out how many square inches it would take to cover an object you would use the label in^2. Some surfaces like floors are too large to be measured using these tiny units so we use feet^2 (such as floor tiles) or yard^2 which is how your house was measured before carpeting was installed. In fact, any linear measurement unit can be used for area; all that is needed is the tiny number two at the top right corner of the unit.

INSTRUCTIONS:
Cut out pieces of the cm^2 paper that will perfectly cover all six sides of a block. When you have all six pieces of "skin," carefully count all the squares on the papers. This is the total surface area of the block, and this number should be entered (along with the label cm^2 or in^2) in the chart below. You have 5 blocks to complete. Measure A, B, and C in centimeters, and measure D and E in inches. Each empty box is worth 2 points, one for the label and one for the actual number.
1-10.

	A	B	C	D	E
AREA→					

11-12. In your own words, pretend that you are describing what area is to a student in 4th grade. Do not tell me how to calculate area; tell me what it is. Use complete sentences.

13-14. Can you think of an easier way of doing this so that you don't have to cut out all that paper? Please describe a way of finding out area in a quicker way.

REAL SCIENCE SCENARIO

A scientist is measuring the area of 20 people's rashes before she starts an experiment. The subjects in the study (people being experimented on) are split into 2 groups. One group only gets plain ointment to put on their rashes, and the other group gets a new medicine that was just invented. The subjects put on the ointments for 4 weeks. After the 4 week trial, the area of the skin rash on each person is measured again.

		Total area of rashes before	**Total area of rashes after**
Group 1	5 Women using plain ointment	864 cm^2	840 cm^2
Group 2	5 Women using ointment with medicine	820 cm^2	201 cm^2
Group 3	5 Men using plain ointment	944 cm^2	959 cm^2
Group 4	5 Men using ointment with medicine	1020 cm^2	900 cm^2

1. The scientist was pleased with the outcome of the experiment. How did the rash area change after the 4 week treatment with medicated ointment?

2. What was the scientist's hypothesis (her best guess about what would happen)?

3. Why did the scientist measure the rash area BEFORE starting the experiment?

4. Why did the scientist have 10 people NOT use the medicine?

5. Which group is the experimental group?

6. Which group is the control group?

7. Which group responded best to the new medicine?

8. Which group got worse during the 4 weeks?

9. Think of 2 possible reasons why this might have happened (question 8)
   1
   2