SCHOLAR NAME _____

uplifteducation

Rising 7th Grade

2021 Summer Assignment

Math and Science

Rising 7th Grade Summer 2021
Math and Science

Dear Uplift Families:

Through the years many parents have asked what can be done over the summer to maintain skills and develop mathematical and scientific thinking. Uplift has created blended summer math and science assignments to help your scholar retain his/her skills and to provide valuable practice over the summer. You should feel free to discuss the work with your child. Discussions are an important way for scholars to remember and retain concepts. Scholars may enjoy working with peers or parents as they practice. Again, this assignment is simply an opportunity for your scholar to maintain skills.

The assignment and answer keys are uploaded on your scholar's math Schoology course page and can be downloaded and printed at your convenience. Hard copies of the assignments are also available through your scholar's math teacher or in the school office.

A few things to note:

- Our goal is to have scholars experience doing math and science over the summer.
- Teachers hope that everyone attempts the packet.
- Teachers will be collecting packets (complete or incomplete) at the beginning of the 21-22 school year.
- Scholars may get guidance from sibling, parent, etc. If a scholar does not know how to do a certain problem, check the answer and work backwards.
- Feel free to use extra paper if more space is needed to work the problems.

Summer Assignments Overview

Math and Science Packet

The practice in this summer packet addresses the following critical areas scholars learned while in 6th grade:

- Math: Numbers and Operations, Proportionality, Geometry and Measurement
- Science: Organisms and Environments

The packet contains **3 assignments** that engage the scholars in a blend of math and science:

- Part 1: Prokaryotic and Eukaryotic Cells
- Part 2: Organisms and Environments
- Part 3: Organization and Interactions in an Environment

MATHia Online

In addition to the Summer Math/Science Assignments, we also want to provide your scholar with the opportunity to engage in online math skills practice through the use of an online platform called MATHia. Within this program scholars will continue to refine their skills with fraction and decimal operations, ratios and proportions, and geometry concepts. This online program supports scholars to work independently by providing help and hints along the way.

We suggest scholars **engage on the MATHia program about 45 – 60 mins each week during the month of June**. Scholars may access their MATHia accounts through their Uplift Classlink system throughout the month of June. The MATHia system will shut down July 1st to prepare for the 21-22 school year.

If you have any questions, please reach out to your campus teachers or leaders.

STAAR GRADE 6 MATHEMATICS REFERENCE MATERIALS

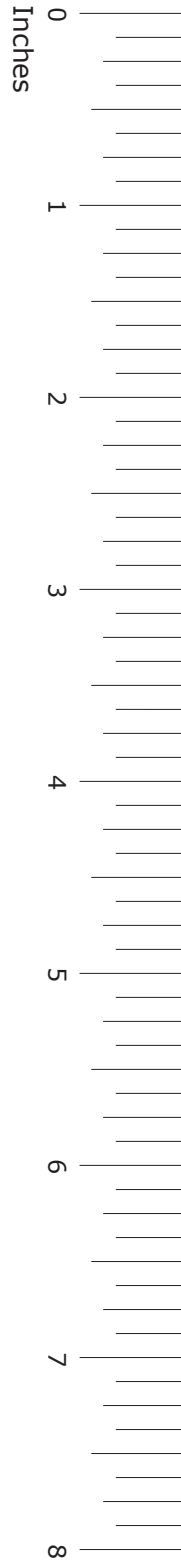
STAAR® State of Texas Assessments of Academic Readiness

AREA

Triangle	$A = \frac{1}{2}bh$
Rectangle or parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$

VOLUME

Rectangular prism	$V = Bh$



STAAR GRADE 6 MATHEMATICS REFERENCE MATERIALS

LENGTH

Customary	Metric
1 mile (mi) = 1,760 yards (yd)	1 kilometer (km) = 1,000 meters (m)
1 yard (yd) = 3 feet (ft)	1 meter (m) = 100 centimeters (cm)
1 foot (ft) = 12 inches (in.)	1 centimeter (cm) = 10 millimeters (mm)

VOLUME AND CAPACITY

Customary	Metric
1 gallon (gal) = 4 quarts (qt)	1 liter (L) = 1,000 milliliters (mL)
1 quart (qt) = 2 pints (pt)	
1 pint (pt) = 2 cups (c)	
1 cup (c) = 8 fluid ounces (fl oz)	

WEIGHT AND MASS

Customary	Metric
1 ton (T) = 2,000 pounds (lb)	1 kilogram (kg) = 1,000 grams (g)
1 pound (lb) = 16 ounces (oz)	1 gram (g) = 1,000 milligrams (mg)

Math Connections

Name: _____ Date: _____

Prokaryotic and Eukaryotic Cells

Cells are the structural and functional units common to all living organisms. A cell is the smallest unit of life that is classified as a living thing. Although cells are extremely small, it is possible to measure them. The smallest metric measurement we generally use to measure length is the millimeter. However, many cells are less than a millimeter long, so they are measured in micrometers, or microns. The symbol for the micrometer is μm.

1 millimeter = 1,000 micrometers

Just how small is a micron? Let's investigate this question with several items in your classroom.

Materials:
Ruler
Any textbook
3 x 5 notecards
Notebook paper

1. How many micrometers thick is one page in your textbook?

   • Measure how many pages in your textbook equal one millimeter. _____ pages

   • Use the following proportion to calculate how many microns thick one page is.

$$\frac{1{,}000 \text{ microns}}{\_\_\_ \text{ pages}} = \frac{\_\_\_\_\_}{1 \text{ page}}$$

2. Use the process above to calculate the thickness of a notecard in micrometers.

3. Use the process above to calculate the thickness a sheet of notebook paper in micrometers.

Math Connections

Some organisms are unicellular, meaning they consist of only a single cell. There are two distinct types of cells: prokaryotic cells (e.g. bacterial cells) and eukaryotic cells (e.g. plant or animal cells.) The main difference between the two is a well-defined nucleus surrounded by a membranous nuclear envelope that is present in only eukaryotic cells. Prokaryotic cells lack a true nucleus.

During an investigation on unicellular organisms, the lengths of five different organisms were recorded in microns. The measurements are shown below.

Organisms	Body Structures	Movement	Type of cell	Length in Microns
Euglena	Eyespot, Chloroplast, Nucleus, Pellicle, Contractile Vacuoles	Flagellum	Eukaryotic	35
Amoeba	Nucleus, Vacuole, Endoplasm, Ectoplasm, Membrane	Pseudopods	Eukaryotic	550
Paramecium	Contractile Vacuole, Food Vacuole, Nucleus, Oral groove, Cell Membrane	Cilia	Eukaryotic	200
Cyanobacteria	Nucleoid DNA, Ribosome, Photosynthetic Lamellae, Phycobilisomes, Plasma Membrane	Gliding (no flagella)	Prokaryotic	20
E.Coli	Cytoplasm, Ribosomes, Plasmid DNA, Nucleoid DNA, Cell Wall, Plasma Membrane, Capsule	6 Flagellum	Prokaryotic	12

4. On the Euglena, the flagella measures about 51 percent of the total length. About how many micrometers is the flagella?

5. What is the length of the amoeba in millimeters?

6. How many millimeters will 250 E. Coli take up if they were lined up next to each other?

Math Connections

Name: _____ Date: _____

Organisms and Environments

Fundamental differences in the cell (the basic unit of all life,) allow for the broadest classification of all living organisms into three domains: bacteria, archaea, and eukarya. Domains are divided into six kingdoms by identifying internal structures and functions, rather than outward characteristics of an organism.

Organisms are classified as prokaryotic or eukaryotic based upon their level of cellular organization. They can also be classified based on the number of cells in their bodies, how they obtain nutrients, and how they reproduce.

Organism Classification by Domain and Kingdom

	Domain	Kingdom	Type of cells	Reproduction	Food source	Named species
Prokaryotic	Bacteria	Bacteria	Unicellular	Asexual	Autotrophs & heterotrophs	4,000
	Archaea	Archaea	Unicellular	Asexual	Autotrophs & Heterotrophs	
Eukaryotic	Eukarya	Protista	Uni- or Multi-cellular	Asexual & sexual	Autotrophs & Heterotrophs	80,000
		Fungi	Multicellular	Sexual	Heterotrophs	72,000
		Plantae	Multicellular	Sexual	Autotrophs	270,000
		Animalia	Multicellular	Sexual	Heterotrophs	1,324,000

Use the chart above to answer questions about the number of species in the world.

1. Based on the chart above, find the sum of named organisms in the world. _____
2. What percent of the named organisms are bacteria and archaea? _____
3. What percent of the named species reproduce only sexually? _____
4. Which kingdom make up 75.65% of the named species? _____
5. What percent of the named species are from kingdoms with only heterotrophs that sexually reproduce? _____

Math Connections

Name: _____ Date: _____

Organization and Interactions in an Environment

Organisms interact with both biotic and abiotic components of their ecosystem to obtain energy and materials necessary for life. The amount of available light and water affects the type and quantity of plants in an ecosystem.

Kentucky bluegrass is used on many lawns. It requires about 2.5 inches of water per week during the summer. In an investigation to see how quickly a lawn will die without the proper water supply, a student decreased the amount of water he put on his lawn and recorded the area of dead lawn growth over a period of 8 weeks.

Effect of Watering on Lawn Growth

Week	Amount of water per week (inches)	Area of dead growth (ft^2)	Area of growth (ft^2)	Percent of healthy lawn
1	2.5	0	500	100
2	1.0	5	495	
3	1.0	8	492	
4	1.0	11	489	
5	0	15	485	
6	0	20	480	
7	0	35	465	
8	0	50	450	

1. If the lawn is 500 ft^2, what volume of water was used on the lawn in week one?

2. What volume of water was used on the lawn in week two?

3. Calculate the percent of healthy lawn each week by dividing the area of growth by 500. Record your answers in the chart above, and record the formula you used.

4. What were the abiotic and biotic factors in the investigation?

5. What other biotic factors could be affected by the decrease in water and its effect on the lawn?