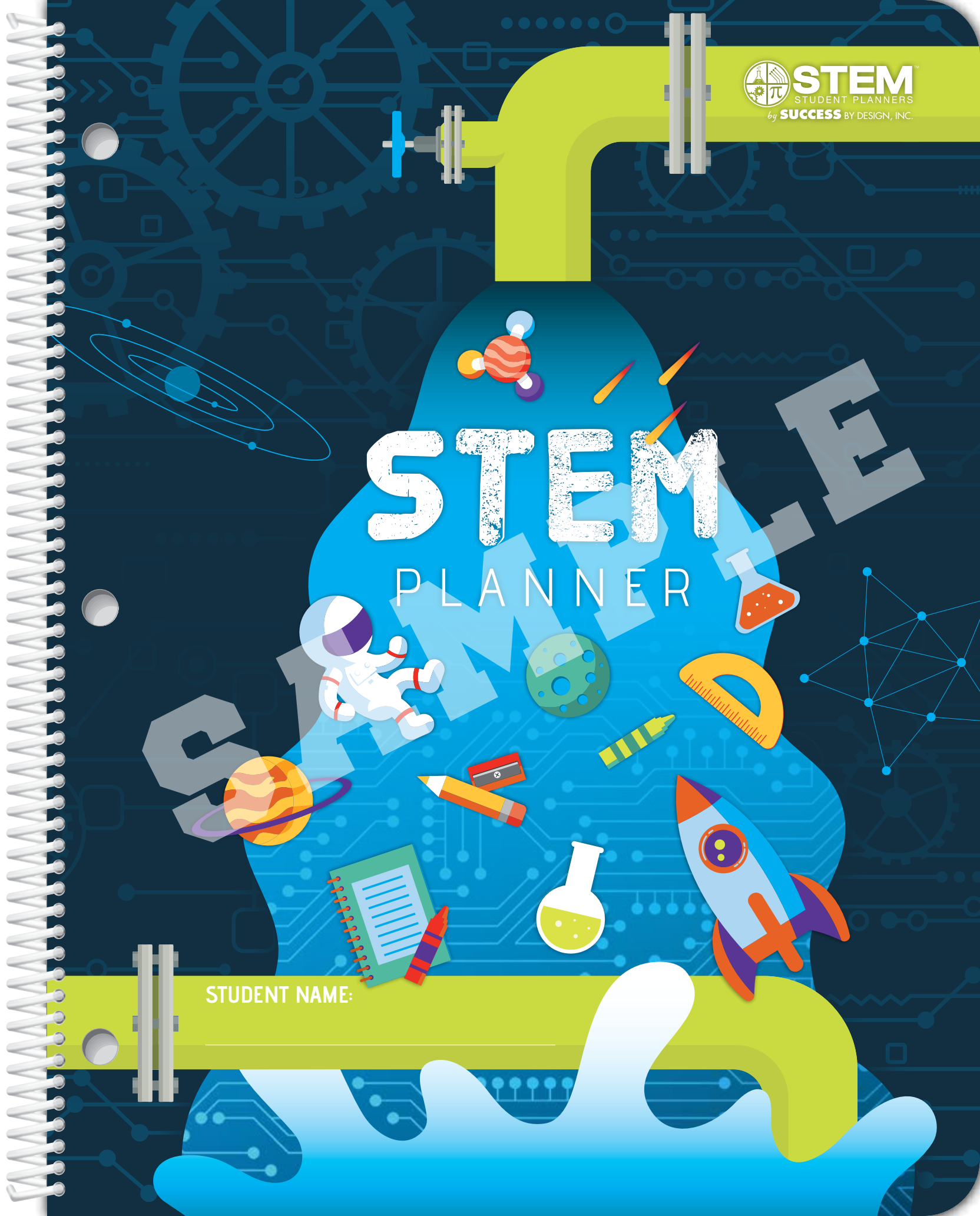


# STEM PLANNER

STUDENT NAME: \_\_\_\_\_



# STUDENT IDENTIFICATION

## THIS PLANNER BELONGS TO:

\_\_\_\_\_

Address: \_\_\_\_\_

City/Town: \_\_\_\_\_

State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

School Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Homeroom: \_\_\_\_\_

## IN CASE OF EMERGENCY NOTIFY:

Contact Name: \_\_\_\_\_

Contact Number: \_\_\_\_\_

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# HOW TO USE YOUR PLANNER

## TO KEEP YOURSELF ON TRACK

Use the big calendar before each month to help you remember special days at school or home. Read about the STEM-related topic of the month. Doing so will introduce you to the types of questions that will be answered for you throughout the month, along with the STEMazing facts with which you will be presented.

### NOTE TO PARENTS/GUARDIANS...

We encourage you to assist your child in utilizing this STEM Student Planner to keep track of his or her daily assignments and activities. Cultivating good organizational skills is vital to a student's academic success. Be certain to initial the planner in the space provided on each right-hand page each evening after ensuring all daily tasks have been completed, and use this space to communicate with your child's teachers.

To help your child better understand the importance of science, technology, engineering, and math in both today's world and their own lives, routinely review each week's question and STEMazing fact. More information on all STEM-related topics featured throughout this planner can be found by visiting the website on each weekly layout.

**FIND HELP WITH SUBJECTS LIKE MATH AND ENGLISH ON THE EXTRA RESOURCE PAGES FOUND IN THE BACK OF YOUR PLANNER!**

**1** Use the big calendar before each month to help you remember special days at school or home. Read about the STEM-related topic of the month. Doing so will introduce you to the types of questions that will be answered for you throughout the month, along with the STEMazing facts with which you will be presented.

**2** STEM DESIGNATIONS: SCIENCE, TECHNOLOGY & ENGINEERING

**3** A STEMazing FACT! One of the most famous artists in history, Leonardo Da Vinci created great paintings such as the *Mona Lisa*. He was also an amazing inventor who came up with the earliest ideas for the helicopter, parachute, tank, and even a robot! To View This Week's References, Visit: <https://kids.britannica.com>

**4** Note your spelling or vocabulary words in this column.

away  
baseball  
celebrate  
daily  
mail  
make  
paint  
rain  
stay  
take  
wait  
way  
yesterday

Read chapter 6 (pages 63-70) due tomorrow.

Spelling test!

Study for spelling test.

Do problems on pages 47-48 due tomorrow.

Write down your homework, tests, and long-term projects on the day they are assigned by your teacher, and record the day they are due. Check each assignment when complete, or use an arrow to move the task to another day.

Use this section to remind yourself of activities outside of school.

Soccer practice 4:00 p.m.

Andrew is a joy to teach. He is quickly becoming a class leader.

Green Eggs and Ham

Mrs. Smith

Make sure an adult at home signs or initials your planner every night to confirm your homework has been completed.

IN ADDITION TO TEACHING YOU ABOUT SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH, YOUR *STEM STUDENT PLANNER™* WILL HELP YOU BE SMART WITH YOUR TIME. SEE HOW ON THESE TWO PAGES!

# LEARN ABOUT OUR STEMazing WORLD!

Most of the time we take for granted all we owe to science, technology, engineering, and math. As a matter of fact, you might find it surprising where we would be without them! Just imagine a world with no computers, smart phones, medicines to make you feel better when you are sick, or even numbers!

Your STEM Student Planner is meant to help you learn more about these four subjects. Each one—science, technology, engineering, and math—is becoming more and more important not only to our world but to your own life too! It is wise to learn all you can about them.

You will notice your planner focuses on a different STEM-related topic each month. During each week of the month, the various sections listed below will teach you more about the featured topic:

- QUESTION OF THE WEEK**  
Science, technology, engineering, and math are key to unlocking many of life's mysteries. In this section, you will find an answer to a question that pertains to the topic of the month.
- STEM DESIGNATION(S)**  
Here we list for you the STEM subjects—science, technology, engineering, and math—that are most closely related to the question of the week and the STEMazing fact that accompanies it. While this may sometimes be just one of the four, in many cases you will find they overlap. In such cases, several are listed.
- STEMazing FACT**  
This interesting and sometimes surprising fact ties in with the weekly question to provide you with yet more information relating to the topic of the month.
- WEEKLY REFERENCES**  
Here you are provided with a website you may visit to learn more about the weekly question and fact. A QR code quickly takes readers to the source of the weekly question and fact. All sites were active when your planner was printed.

# STEM AND... ART, \ÄRT\, NOUN

1. something that is created with imagination and skill and that is beautiful or that expresses important ideas or feelings



Art is all around us, and not just in the form of paintings, drawings, and sculptures. The way we experience objects, locations, products, and services is rooted in art. The chairs on which we sit, the smart phones in our hands, and the buildings we spend time inside would not exist without the art-influenced creativity of artistic designers. Art is in the talents of songwriters and musicians who craft songs we enjoy; it's in the directing and acting that brings movies and TV shows to life; and it's evident in every leap and turn of a ballet dancer's routine.

Many STEM careers revolve around the arts. Curators preserve and display beautiful historical and contemporary works of art for all to enjoy; medical illustrators create detailed images to help explain complex medical processes to the general public; and recreational therapists use music, crafts, and dance to help patients cope with mental, emotional, and physical problems.

Are you an artistic person? Do you enjoy being creative? Do you like coming up with new ideas to fulfill everyday needs? Maybe a STEM career focusing on art is in your future!

## DID YOU KNOW?

August is American Artist Appreciation Month. Regardless of the medium they use, artists enrich our lives through their creative design talents in many different ways. The work they create evokes emotion, enhances daily life, entertains, or fulfills practical needs. Take time to look around and appreciate how much of what you see was crafted by the mind of an artist.

# AUGUST

## 2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

### SOURCES:

merriam-webster.com  
innovationtoolbox.com.au  
searchsoa.techtarget.com

businessdictionary.com  
creativityatwork.com

**JULY**  
**2023**

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**STEM DESIGNATIONS: SCIENCE & ENGINEERING**

**HOW DOES ART AFFECT WHAT WE USE EVERY DAY?**

Art, or more specifically, design, plays a large role in the things we use every day. Tools, toys, home appliances, electronics, cars, bicycles, furniture, even the silverware we use to eat our food would not have been created without first starting out as an idea a designer sketched out on paper or a computer.



**A STEMazing FACT!**

Artists' designs tackle problems, both big and small. From large-screen smartphones designed to fold to become easier to carry, to portable shelters that provide temporary homes to victims of disaster or war, each took shape in the mind of a designer.

To View This Week's References, Visit:  
<https://www.bls.gov>



**23 SUNDAY**

**24 MONDAY**

**25 TUESDAY**

**26 WEDNESDAY**

**27 THURSDAY**

**28 FRIDAY**

**SPELLING/VOCABULARY WORDS**

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**29 SATURDAY**

SPELLING • LANGUAGE ARTS • READING

MATHEMATICS

LIFE SKILLS • SOCIAL STUDIES • SCIENCE

KEEP TRACK

Communication Station OPTIONAL TEACHER COMMENT CODES (CC) GE: GOOD EFFORT PW: PARTICIPATES WELL VA: VERY ATTENTIVE IH: INCOMPLETE HOMEWORK MA: MISSING ASSIGNMENT LA: LATE ASSIGNMENTS PE: POOR EFFORT UA: UNSATISFACTORY ATTITUDE

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SPELLING • LANGUAGE ARTS • READING

MATHEMATICS

LIFE SKILLS • SOCIAL STUDIES • SCIENCE

KEEP TRACK

BOOK OF THE WEEK:

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INITIALS CC

# STEM AND... CONSTRUCTION, \KĒN-'STRĒK-SHĒN\, NOUN

1. the act or process of constructing; 2. the art, trade, or work of building

# SEPTEMBER

2023



Construction is critical to the progress of a country and greatly impacts its people. Workers in this field put up buildings, demolish structures, dig trenches, perform excavations, and build and repair roads.

The construction industry makes it possible for the public to thrive. Business owners need offices from which they and their staff can work, people need homes in which to live, and children need schools to attend. We can also thank workers in the construction field for our water supply and sewage treatment systems. Try to imagine what your town would be like if none of that existed!

From the early stages when a project is first designed, to the moments the last brick is laid or the grounds are landscaped, there is cooperation involving many people to make it all happen. Professionals such as carpenters, electricians, contractors, civil engineers, and plumbers all have a hand in the different aspects of construction and work together, using the latest technologies to get the job done.

Such cooperation enables fully developed nations like the United States, Canada, Greece, and the United Kingdom to handle their ever-growing populations, and it also aids lesser developed areas such as Bangladesh, Ethiopia, and Haiti in raising their standards of living.

### DID YOU KNOW?

Labor Day began in Canada in 1872 when a parade was held to support a strike against the then 58-hour workweek. The first Labor Day celebration in the U.S. took place in 1882 in New York City's Union Square. It was held to gain support for reducing the average 12-hour workday to 8 hours. Ten thousand workers marched from City Hall to 42nd Street and then met their families for a picnic, concert, and speeches.

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## WHEN WERE POWER TOOLS INVENTED?

The first power tool was patented in 1889—an electric drill. By 1895 the first portable handheld electric drill was created in Germany. Although hand tools are still an important part of construction, the power drill's success paved the way for the creation of many more power tools, including electric sanders, jackhammers, saws and screwdrivers.

3 SUNDAY

4 MONDAY

5 TUESDAY

6 WEDNESDAY

7 THURSDAY

8 FRIDAY



## A STEMazing FACT!

Humans aren't the only species to use tools! Otters break open hard shells with rocks. Chimps make and use spears and stone hammers. Elephants use tree branches as back scratchers, and brown bears use barnacle-covered rocks to scratch their faces!

To View This Week's References, Visit:  
<https://www.thoughtco.com>



### SPELLING/VOCABULARY WORDS

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9 SATURDAY

SPELLING • LANGUAGE ARTS • READING

MATHEMATICS

LIFE SKILLS • SOCIAL STUDIES • SCIENCE

KEEP TRACK

Communication Station    OPTIONAL TEACHER COMMENT CODES (CC)    GE: GOOD EFFORT PW: PARTICIPATES WELL VA: VERY ATTENTIVE IH: INCOMPLETE HOMEWORK MA: MISSING ASSIGNMENT LA: LATE ASSIGNMENTS PE: POOR EFFORT UA: UNSATISFACTORY ATTITUDE

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# STEM AND... ENERGY, \E-NĒR-JĒ\, NOUN

usable power (as heat or electricity); also: the resources for producing such power



We use a lot of energy. It lights our homes. It powers equipment in our office buildings. We put it to work when we drive our vehicles, haul goods from place to place, and manufacture the products we buy. Energy is needed in every part of our lives!

The U.S. Energy Information Administration predicts that by the year 2040, the amount of energy people around the world use will increase by 56 percent. In America alone, energy use is doubling every 20 years. These are some big numbers!

All of this means we must use energy more wisely. We also need to keep exploring alternative, or other clean, renewable energy options. Renewable energy sources include the sun, wind, and water. They are plentiful and ongoing, and help us depend less on nonrenewable fossil fuels such as coal, oil, and natural gas. One day, these nonrenewable sources will be gone.

We are working now to prepare for this day. Science, technology, engineering, and math will help us develop sources that can provide us with the energy we need over and over, but we must still do all we can to use less of it in the first place.

## DID YOU KNOW?

Americans use more energy than people who live in most other nations. The United States is home to only about five percent of the people who live on Earth. Yet its residents use some 23 percent—or almost one-quarter—of the world's energy. Schools teaching students in kindergarten through grade 12 spend over \$6 billion on energy use each year! October is National Energy Action Month. It is a time for us to start using energy in smarter ways.

# OCTOBER

## 2023

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8	9	10	11	12	13	14
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22	23	24	25	26	27	28
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WHAT MAKES SOMETHING GLOW IN THE DARK?

Have you ever played with a ball that glows in the dark? The ball contains special chemicals called phosphors. Being exposed to light for a period of time energizes these phosphors. Once they are energized, they slowly release their stored energy and give off small amounts of light. We then see the ball as a glowing object!

1 SUNDAY

2 MONDAY

3 TUESDAY

4 WEDNESDAY

5 THURSDAY

6 FRIDAY



A STEMazing FACT!

A reaction between two chemicals makes a glow stick shine. The chemicals mix together inside the plastic stick to produce energy. That energy is then changed to glowing light by a fluorescent, or bright, dye inside the stick.

To View This Week's References, Visit: <https://wonderopolis.org>



SPELLING/VOCABULARY WORDS

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7 SATURDAY

SPELLING • LANGUAGE ARTS • READING

MATHEMATICS

LIFE SKILLS • SOCIAL STUDIES • SCIENCE

KEEP TRACK

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## PUNCTUATION GUIDELINES

### PERIOD (.)

- Place a **period** at the end of a declarative sentence.  
*Example: Andy and his friends visited the museum.*
- Also use a period at the end of an imperative sentence that does not express strong emotion.  
*Example: Please pick up that piece of paper.*
- Use after an initial.  
*Example: Lyndon B. Johnson*
- Use after an abbreviation.  
*Example: October - Oct.*
- Use at the end of a direct quotation if the quotation is a statement or a command.  
*Example: Tammy said, "I am going to the market."*

### COMMA (,)

- Use a **comma** to separate words and phrases in a series.  
*Example: We bought some socks, two shirts, and a pair of jeans.*
- Use before the words and, or, or but when they join two simple sentences in a compound sentence.  
*Example: It was a long drive, and I decided to sleep along the way.*
- Use to set off the name of someone addressed.  
*Example: "Julie, please do the dishes."*
- Use to set off the words yes, no, and well at the beginning of a sentence.  
*Example: "Well, I really don't feel well."*
- Use between a city and a state.  
*Example: Pittsburgh, Pennsylvania*
- Use between the day and the year.  
*Example: March 18, 1976*
- Use to separate a speaker's words from the rest of the sentence in a direct quotation.  
*Example: Phillip said, "I'm looking forward to helping you."*

### QUESTION MARK (?)

- Use a **question mark** after all interrogative sentences.  
*Example: Would you like to go to the movies?*

### EXCLAMATION MARK (!)

- Use an **exclamation mark** after sentences that express surprise or deep feeling.  
*Example: I can't believe I ran into you today!*

### SEMICOLON (;)

- Use a **semicolon** when a conjunction is omitted; it indicates a greater degree of separation than a comma would.  
*Example: The water was very rough; our boat rocked back and forth.*

### COLON (:)

- Use a **colon** to start a list or to formally introduce a statement.  
*Example: Rebecca has three pets: a dog, cat, and fish.*

### APOSTROPHE (')

- Use an **apostrophe** to replace a letter or letters that have been left out in a contraction.  
*Example: will not = won't*
- Use to show possession in singular nouns.  
*Example: Mary's game*
- Use to show possession in plural nouns that end in **s**.  
*Example: The teachers' desks are brown.*
- Use to show possession in plural nouns that do not end in **s**.  
*Example: The women's clothes are in this section of the store.*

### QUOTATION MARKS (" ")

- Use **quotation marks** to show the exact words of a speaker.  
*Example: "It's nice to meet you," Walter said.*
- Use around the titles of stories, poems, songs, magazine articles, and essays.  
*Example: "The Star-Spangled Banner"*

### PLURALS

- Most nouns are made plural by adding an **s** to the singular.  
cat + s = cats, flower + s = flowers  
truck + s = trucks, dream + s = dreams
- Nouns ending in **sh, ch, x, s,** and **z** are made plural by adding **es** to the singular.  
dish + es = dishes, hutch + es = hutches  
box + es = boxes, loss + es = losses
- The plurals of common nouns ending in **y** preceded by a consonant are formed by changing the **y** to **i** and adding **es**.  
cry + es = cries, French fry + es = French fries  
kitty + es = kitties, firefly + es = fireflies
- The plurals of nouns which end in **y** preceded by a vowel are formed by adding only **s**.  
donkey + s = donkeys, day + s = days  
way + s = ways, monkey + s = monkeys

### CONTRACTIONS

A contraction is a shortened form of two words. An apostrophe takes the place of the missing letter or letters in each contraction.

- Pronoun Contractions:**  
Pronouns are joined with helping verbs and linking verbs.  
I + will = I'll, they + have = they've  
we + are = we're, you + would = you'd
- Verb Contractions:**  
Helping verbs and linking verbs are joined with the word **not**.  
would + not = wouldn't, has + not = hasn't  
is + not = isn't, was + not = wasn't

## PARTS OF SPEECH

### 1 NOUN

Common nouns refer to any person, place, thing, or idea.  
*Examples: boy school vegetable  
city government gloom*

Proper nouns are capitalized and refer to specific persons, places, objects, or ideas.

*Examples: Amber Niagara Falls  
England Saturday*

### 2 PRONOUN

A pronoun can take the place of a noun.  
*Example: Bob saw his sister as she walked down the hall.*

There are three kinds of pronouns.

*Example: He is looking at it through his camera.  
subjective objective possessive*

### 3 VERB

A verb shows action or state of being and indicates the time of that action or state.

*Examples: We watched the parade. (past)  
We are watching the parade. (present)  
We will watch the parade. (future)*

### 4 ADJECTIVE

Adjectives are words that describe nouns and specify size, color, number, and the like. This is called modifying; adjectives are modifiers.

*Example: A large, black dog ran into the old, red barn.*

## SPELLING RULES

- I before e**  
Except after **c**,  
Or when sounded as **a**  
As in **reigning** and **weigh**.
- Final consonants are not doubled when the word ends in more than one consonant.  
*Examples: round rounded rounding  
sign signed signing*
- When words end in soft **ce** or **ge**, keep the **e** before **able** and **ous**.  
*Examples: trace traceable  
advantage advantageous*
- When verbs end in **ie**, change the termination to **y** before adding **ing**.  
*Example: lie lying lied*

### 5 ADVERB

Adverbs are words that describe verbs, adjectives, or other adverbs. They specify in what manner, when, where, and how much.

*Examples: The boy laughed cheerfully as he flew the kite.  
He was extremely happy.*

### 6 PREPOSITION

Prepositions show how a noun or a pronoun is related to another word in a sentence.

*Examples: We walked around the corner.  
She stood near the building.*

### 7 CONJUNCTION

Conjunctions join words, phrases, or clauses.

*Examples: Neither he nor she was allowed to go to the game.  
We yelled at him, but he could not hear us.*

### 8 INTERJECTION

Interjections are also known as exclamations and are signaled by the use of the exclamation mark (!).

*Example: Hey! Look out for that truck!*

## GENERAL SPELLING INFORMATION

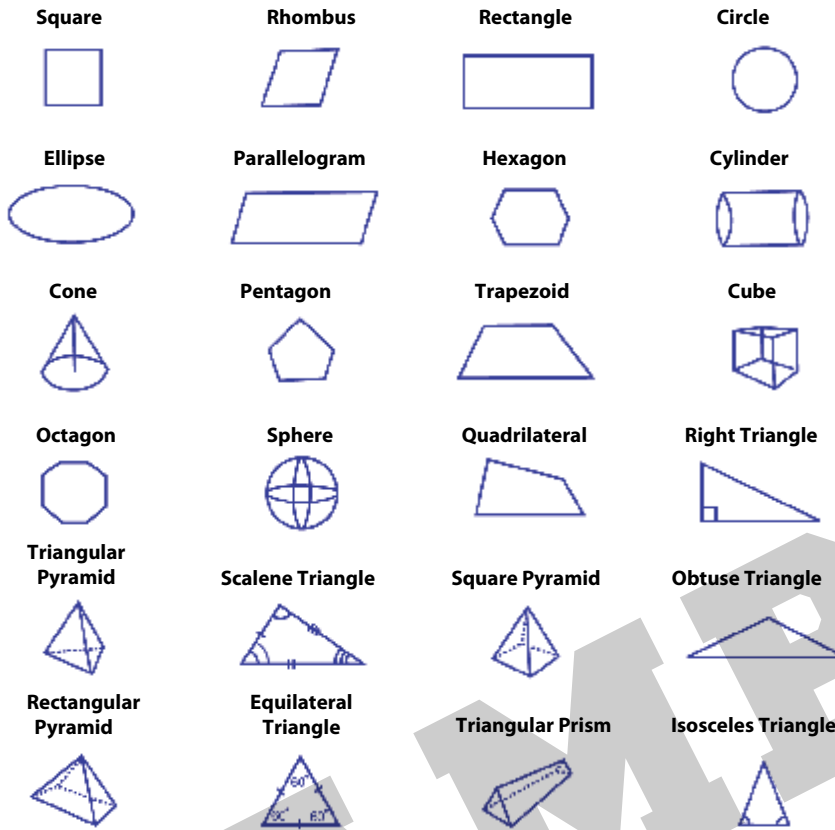
The spelling of some nouns is changed to form plurals.

Singular	Plural
mouse	mice
tooth	teeth
foot	feet
woman	women
child	children
man	men

The singular and plural forms of some nouns are the same.

Singular	Plural
moose	moose
fish	fish
deer	deer
trout	trout
sheep	sheep
elk	elk

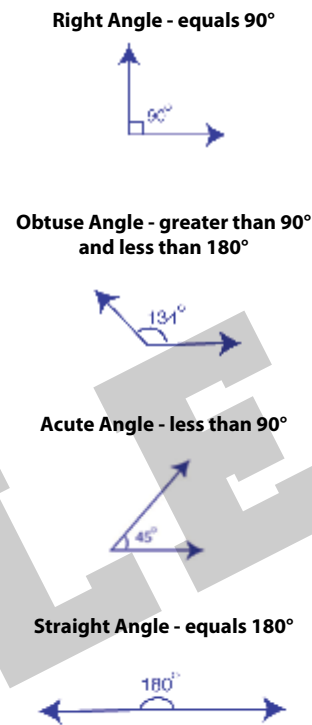
## SHAPES



## MULTIPLICATION CHART

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
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3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

## ANGLES



## SYMBOLS

- + Addition
- ∠ Angle
- ∩ Arc
- ∴ Decimal Point
- ° Degree
- ÷ Division
- \$ Dollar
- = Equal
- > Greater than
- < Less than
- Line Segment
- × Multiplication
- # Number
- ∥ Parallel
- % Percent
- ⊥ Perpendicular
- π Pi
- ↗ Ray
- ∟ Right Angle
- { Set
- Subtraction

## MEASUREMENTS

### English System

#### Length

- 1 foot (ft) = 12 inches (in)
- 1 yard (yd) = 3 feet
- 1 yard = 36 inches
- 1 mile (mi) = 5,280 feet
- 1 mile = 1,760 yards

#### Liquid

- 1 cup (c) = 8 fluid ounces (fl oz)
- 1 pint (pt) = 2 cups
- 1 quart (qt) = 2 pints
- 1 gallon (gal) = 4 quarts

#### Weight

- 1 pound (lb) = 16 ounces (oz)
- 1 ton (t) = 2,000 pounds

### Metric System

#### Length

- 1 centimeter (cm) = 10 millimeters (mm)
- 1 decimeter (dm) = 100 millimeters
- 1 decimeter = 10 centimeters
- 1 meter (m) = 1,000 millimeters
- 1 meter = 100 centimeters
- 1 meter = 10 decimeters
- 1 decameter (dkm) = 10 meters
- 1 kilometer (km) = 1,000 meters

#### Liquid

- 1 liter (L) = 1,000 milliliters (mL)

#### Weight

- 1 gram (g) = 1,000 milligrams (mg)
- 1 kilogram (kg) = 1,000 grams

#### Time

- 1 minute (min) = 60 seconds
- 1 hour (hr) = 60 minutes
- 1 day (d) = 24 hours
- 1 week (wk) = 7 days
- 1 year (yr) = 12 months (mo)
- 1 year = 52 weeks
- 1 year = 365 days\*
- 1 decade = 10 years
- 1 century = 100 years

\*except leap years, which have 366 days



**Penny**  
= 1 cent  
= 1¢  
= \$0.01



**Nickel**  
= 5 cents  
= 5¢  
= \$0.05



**Dime**  
= 10 cents  
= 10¢  
= \$0.10



**Quarter**  
= 25 cents  
= 25¢  
= \$0.25

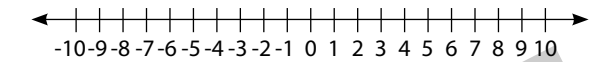


**Dollar**  
= 100 cents  
= 100¢  
= \$1.00

## ROMAN NUMERALS

I = 1   V = 5   X = 10   L = 50  
C = 100   D = 500   M = 1,000

## NUMBER LINE



## NUMBERS

### Prime Number:

A whole number greater than one which has only two factors, itself and 1.  
Ex: 2, 3, 5, 7, 11, 13, 17, 19, 23

### Common Factor:

A number that is a factor of two or more numbers. Ex: 1, 2, 5, and 10 are common factors of 20 and 30.

### Greatest Common Factor:

The greatest number that is a factor of two or more numbers.  
Ex: 8 is the greatest common factor of 24 and 32.

### Least Common Multiple:

The smallest number that is a multiple of two or more numbers.  
Ex: 20 is the least common multiple of 2, 4, and 5.

**1**  
—  
**2**

### Numerator:

Number above the line in a fraction.

### Denominator:

Number below the line in a fraction.