

THIS PUBLICATION OF SUMMER VACATION HOMEWORK IS A CREATIVITY AND THINKING TOOL WHICH FOCUSES ON THE FUN AND ACADEMIC COMPONENTS TO BALANCE CHILD'S INTEREST AND LEARNING.



Dear Parents,

The moment children finish their final exams the most exciting and much awaited time of the school year i.e. the summer vacation starts the very next day.

Summer Vacations are greeted with joy by kids and are of course a time to reinvigorate and revive. However, a balance between recreation and work must be found to ensure a break that is productive as well as relaxing.

As the school closes for the summer break we have planned some activities /worksheets / projects for your child to enhance his / her learning skills in a fun filled way. We have tried to make the work enjoyable keeping in mind the interest of the children so that children are engaged positively and their energies are well-directed.

Mentioned below tips will not only help your child stay organized but will also make your vacation fun-filled and interesting. So, if you haven't nailed down your plans yet, here are some ideas that can make yours and ultimately your child's vacation an enriching and fun-filled experience.

Tips for Parents

There are many ways to support your child's learning by providing opportunities for reading, writing, speaking and listening while on vacation. Family discussions, word games, trips to a local bookstore or library to choose books, visiting museums and other interesting places are all fun ways to involve your child in literacy activities over the summer. As a parent, you must also promote physical activity, improve coordination, teach good sportsmanship.

HOLIDAYS HOMEWORK FOLDER: Attempt all the activities/projects given in the Summer Vacation Task Booklet. GET CREATIVE: Help your child make an attractive, handmade folder with old newspapers. Decorate it and compile all the holiday homework in it.

MUST DO

- 1. Encourage your child to eat healthy food and drink lots of water during summer.
- 2. Make a routine for your child to play, revise concepts and watch T.V. (Let your child watch some entertaining T.V. shows so that he/she does not watch T.V. as a pastime).

MAKE YOUR HOME A PLACE FOR READING: Understand that reading begins at home. Children read their environments, so make your home a print rich environment. Read! Don't expect reading to be important to your children if they see that it's not important to you. Invite your child to read with you.

TRAVEL TIME ACTIVITY: As children learn to observe their surroundings, they develop a sense of curiosity about themselves and the world around them. We encourage parents to point out, discuss and expose children to the world around them. First hand observation and hands-on exposure is the best way to give student the foundation that they need for learning. Children should be encouraged to ask questions. As we all know, having answers to questions is the first step towards satiating the basic thirst for knowledge.

Most importantly, remember to have fun and stay active as a family.

Exhibition of Summer Vacation Task

All students are required to complete their Summer Vacation Task. We shall hold the exhibition of summer projects during the first week of school inviting parents to visit the school to see their children presenting their work.

Roots International Schools wishes all of you happy and healthy Summer Vacation! See you on 15 th August 2020.!























Verbs

Use these verbs to fill in the blank below.

 swim
 play
 drink
 fly
 wear

 ride
 write
 drive
 cut
 redd

 ring
 sing
 draw
 sleep
 walk

- 1. You _____ a kite.
- **2.** You _____ a car
- 3. You _____ with a knife.
- 4. You ______ your uniform.
- 5. You _____ story books.
- 6. You _____ with a pen.
- **7.** You _____ a bell.
- 8. You _____ a picture.
- **9.** You _____ a horse.
- **10.** You _____ games.
- **11.** You _____ songs.
- 12. You _____ at night.
- 13. You ______ in the swimming pool.
- **14.** You _____ along the road.
- **15.** You _____ water.

ENGLISH

Write each vocabulary word next to its definition.

announced	candidates	convince	decisions
elect	estimate	government	independent

1.	people seeking an office or honor
2.	choices you make about something
3.	to guess an amount
4.	people who guide a city, state, or country
5.	to cause someone to believe or do something
6.	able to do things for yourself
7.	to choose by voting
8.	told people about something

search for and circle the hidden words!



sweat listening meaningful rapid chapter service

import injury



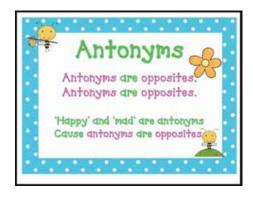
SYNONYMS OR ANTONYMS

Antonyms are words that have the opposite meaning.

Synonyms a word or phrase that means exactly or nearly the same as another word.

Read each pair, write an S next to word pairs that are Synonyms and A next to words pairs that are antonyms.

1. sit /stand	
2. rare /uncommon	
3. watch/view	
4. near/distant	
5. work/play	
6. miniature/small	
7. pal/friend	
8. angry/irate	
9. car/automobile	
10. wild/tame	
11. lead/follow	
12. dull/boring	
13. protect/defend	
14. teach/instruct	
15. musical/melodies	
16. jump/leap	
17. rapid/fast	
18. hungry/full	
19. inside/within	
20. smelly/aromatic	
21. book/tome	
22. noisy/quiet	
23. buy/sell	
24. hot/chilled	
<u>l</u>	





Make a list of things you can invent.

ENGLISH





ForHome	For Classroom	
ForFriends	ForFun	

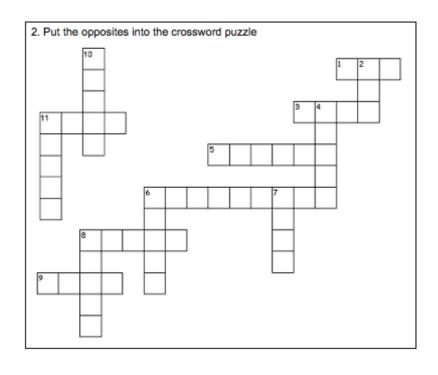
Articales a, an, the

Directions: choose the correct article for each sentence.

- 1. Sue had to hurry to catch the / an bus
- 2. Clive and julian played guitar in a / an band.
- 3. Petey buried an / a bone in Nana's backyard.
- 4. My school won the / an first place prize for selling candles!
- 5. I want to ride my bike to the / a friend's house.
- 6. The / An new computer we bought has iTunes on it.
- 7. My sneakers have a / an orange stripes on the side.
- 8. Legoes are fun to play with the / a friend or two.
- 9. We watched a TV show being filmed in a / the town
- 10. I watched as mom put the cream -of-Wheat into a / an pot

Adjectives - Easy

Match the adjectives and opposites			
1. Match the adjectives 1 → new 2 ↓ high 3 → fast 4 ↓ dark 5 → fun 6 ↓ clean 6 → easy 7 ↓ beautiful 8 ↓ big 8 → tall 9 → strong 10↓ old 11→short 11↓ dark	difficult small slow old dirty short ugly weak long young light light boring low		





Describe a thing you want to invent.



Search for and circle the hidden words!



really unless condition

convince culture

scold public

Autobiographies write the story of your life.

Awards:create awards to present to historical figures, scientists, mathematicians, authors, or characters from a novel.

Banners: create an informational banner.

Irregular verbs. Complete.

Base form	Past	Past
	simple	participle
caught	caught	caught
light		
	broke	
	became	
		run
take		
hide		
		sold
		chosen
	cost	
	cut	
stick		
		sat
	spoke	
	sank	
feed		
		felt
		told
know		
leave		

Think of three different examples for each of the topics in the table.

music and dance	Jazz, salsa, reggae
foods	
words	
sports	
inventions	
natural resources	



Do you know or search which country created each example you have given above? Write few lines for each.





You could invent any tool or new technology that would improve your life in some way, what would you create? what would it do? How would it work? When would you use it? stick or draw a picture.



Prefixes

Directions: Choose the proper prefix to complete each word.

fore- pre- re- un- dis- mis- sub-

- 1. Mom had to _____ heat the oven to 350° to bake the cake.
- 2. To help keep the Earth clean, we____cycle all of or plastic.
- 3. I looked over my writing and found a _____ spelled word.
- 4. Before you take off your shoes, you need to _____ tie them.
- 5. You may be correct, but I _____ agree with you.
- 6. We checked the _____cast before we planned the event.
- 7. The big, gray _____ marine plunged down into the water.
- 8. If you want to be ready for something, you need to _____pare.
- 9. Make sure you _____turn the library book on time!
- 10. I try to be careful but sometimes I make a _____ take.

Solve the word puzzle. Search the hidden words.

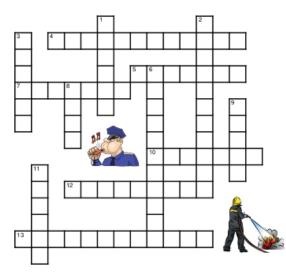


steal frustrate traffic encounter

brought throughout movie happens

Complete the Puzzle.

What do you do?



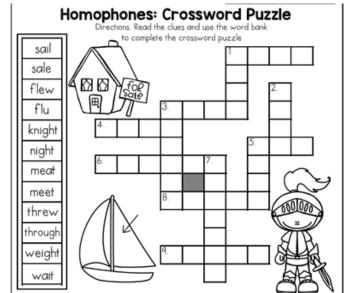
Across

- 4 Who fights crime?
- 5 Who studies at school?
- 7 Who teaches students at school?
- 10 Who takes care of teeth?
- 12 Who drive a bus?
- 13 Who brings our mail?

Down

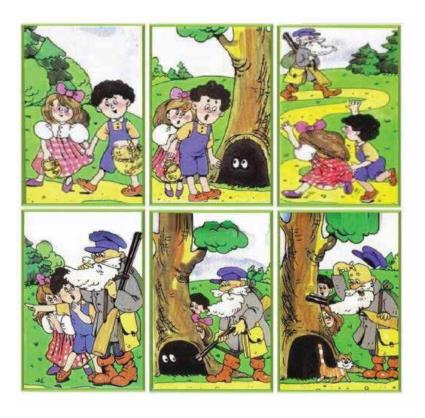


- 1 Who sings songs?
- 2 Who fights fires?
- 3 Who serves food in a resturant?
- 6 Who drives a truck?
- 8 Who cooks in a hotel or resturant?
- 9 Who looks after sick people and helps doctors?
- 11 Who treats patients (sick people)?



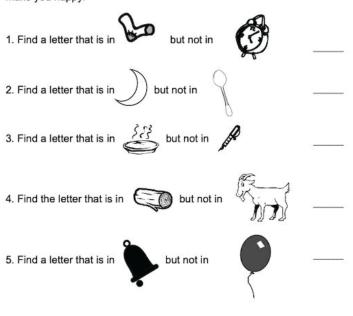
Across: 1. You can ____ my new friend. 3. We will ___ for the bus to come. 4. The store is a having a big ____. 5. She was sick with the ____. 6. The ___ mounted his horse. 8. He ___ the ball to first base. 9. It was a long ___ , and everyone was tired 1. My dad cooked ___ on the grill. 2. They went for a ___ around the island. 3. The baby gained a little ____. 5. We ___ our kites high in the sky. 7. He walked ___ the jungle.

Look at the following pictureequence and write a story. Give a title for the story



Picture Puzzler

If you find the correct letter for each clue, you'll spell a word that should make you happy!



Write your letters again here to spell a happy word: _

SUMMER TASK 2021

Biographies write the life story of someone else. It could be a friend, family member, historical figure, or a fictional character.

Blogs: create blogs for literary characters or historical figures. Create an actual blog for free at blogger.com or just write and organize articles on white printer paper if the internet is not available.

Grade 6& 7

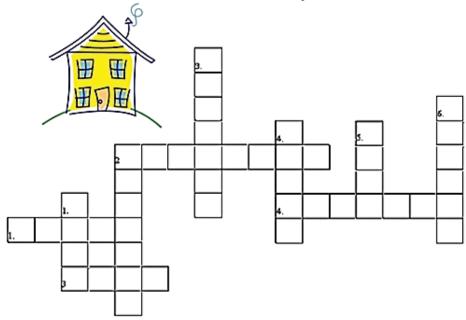
Complete the Puzzle.

Past Participles of Irregular Verbs

Can you find all the hidden words in this word search? Past Pwords can go in the following directions: $\rightarrow \leftarrow \downarrow \uparrow$ Can Words can go in the following directions: -> + + + E 0 т G т E T C E т T 0 G D A E N E 0 E Ε T T U W ī Ε N S 3 S P E Z P N G N 0 E H т S ٧ Z G E F U W \$ т E S D N 1 X E U 0 0 Т T z D E 0 0 S D E N W D R N к L N U E S W 0 S 0 T G N N Ε Υ Т D ĸ N H ٧ D R T ٧ Ε N S z E 0 D 0 W Q C G E M 0 C

Advanced Crossword Puzzle – Parts of a House

Directions: use the clues below to fill in the crossword puzzle with the correct words.



Across:

- 1. The part of a room/building which forms the lower enclosing the part that you walk on.
- 2. A room where you can take a shower. bath, or use the toilet.
- 3. The external upper covering of a building which protects the inside from rain and snow.
- 4. The internal upper surface of a room it is above your head.

Down:

- 1. A moveable barrier which blocks an entrance to a room or building.
- 2. A room used for sleeping.
- 3. A room used for cooking.
- 4. A covered exterior area of a building used for sitting.
- 5. This is used to separate one room from another. it does not move.
- 6. A room used store motor vehicles.

Blueprints: reate blueprints or floor plans of a scene described in a novel, an historic setting, or an earthquake proof bridge or structure.

Booklets: reate an informational booklet. for example, create booklets showing comma rules, narrator's perspective, genre, figurative language, and more. Booklets can be applied to almost any unit, all you require to make are some blank white printer paper folded in half.



Brochures brochures can be made as either tri-fold or bi-folds. You can create informational brochure's a story's setting, or a natural event such as how a tidal wave is formed or how the food chain works.

Calendars create a calendar charting the dates of key events. This can be applied to an historical event of Pakistan, a scientific event, or the sequence of events in story.

Classified Adscreate classified type ads as seen in newspapers.

Comic Strips or Books: reate an illustrated comic strip or book representing events from history or a work of fiction.

Illustrated Quoteschoose a meaningful quote from a text that you have read. Explain why the quote interests you and then write the quote on a blank sheet of paper and draw related images.

Pen-pals: write letters to and from important people from history or the characters in a story.

ProjectWork for Grade 6-7

Acting in a play

Create a short play about artists working in a studio. Then act it out

Create a play about artists in a studio.

What artist do and what kind of artist you want to be in the play. Give yourself a unique name and choose what tools you will need

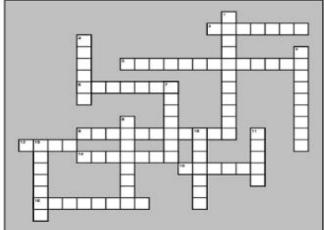
Think about what artist would say to each other in a studio. Talk about your ideas with your family members.

Perform the play for your family. Remember to speak clearly, show the artwork you created and act like you are a real artist.

Book Review

ENGLISH

Cross word puzzle: Investigations Solve the crossword using the list of words and the clues



infer
observe
examine
revealed
nconceivable
aspects
link
detective

inquisitive inspect conclude inquiry a nalyze mental deduce nvestigate

Across

- 2. a question
- 5. unimaginable
- 6. to examine all the parts of something in order to understand it 4. a person whose job is to find or recognize the hidden
- 9. to look into a situation (often a crime, but it can also be a mystery)
- 12. a connection: one part of a chain
- 14. to notice or watch
- 15. to figure out something unknown by considering all its known 11. to make a logical guess that something is true based aspects and reasoning it through
- 16 to consider the evidence and then

Down

- 1. curious; wants to understand things
- 3. related to the mind
- information needed to solve a crime
- 7. to look closely at something
- 8. shown or made known
- 10. different sides or ways of looking at something
- on the evidence, although the evidence is not clear enough to be absolutely certain
- 13. to look at something carefully to find problems or specific information

Word association find a word that associates with the following sets of words.

Cake, Swiss, cottage

Glasses, screen, day

Cream, cube, cap

Knife, fly, cup

Find the **mystery word** Replace the third letter of each word with a new letter to create a different word. For example, the word MAKE could become MARE, MALE, MATE and so on. It's your job to figure out which one works to create the mystery word.

ENGLISH

TUGHAT & HBTUGO

ODULC & ODOG

SUMMER TASK 2021

SAME
MAKE
BOAT
NEAT
STOP
BAKE
Find rhyming pairs Unscramble the words below so that each pair of words rhymes.
RBAE & HREAS
WNROED & UTRHNDE



Lateral thinking problems

Lateral thinking problems require creative thinking with an indirect approach.

These questions require logic and careful thought to solve. Here are two examples of lateral thinking problems you can try to solve.

a) The river crossing problem

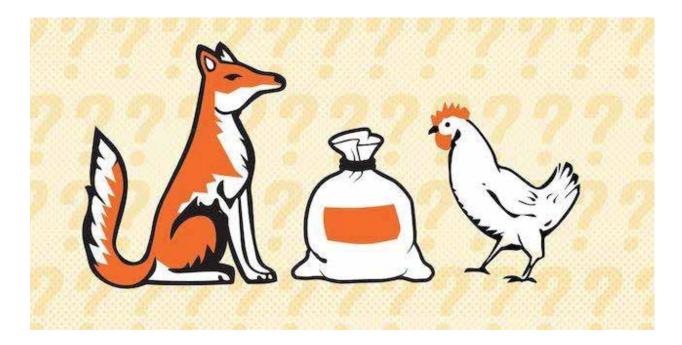


Image source: Popular Mechanics

A farmer is travelling with a fox, a goose, and a bag of beans. During his journey, he comes across a river with a boat to cross it.

The farmer can only fit one thing in the boat with him at a time. If left alone together, the fox will eat the goose or the goose will eat the beans. How does the farmer get everything across the river safely?

ENGLISH

b) The light bulb problem



There are three light switches outside of a room-- labeled number one, number two, and number three. The door to the room is closed and you can't see in. All three switches are off.

You need to figure out which switch belongs to which bulb. You can use the switches however you want to, but can only enter the room once. How do you do it?

- 1. Writing a Magazine Article
- Choose a topic that is interesting to you. If you are interested in your topic, it'll be fun!
- Research your topic and make a list of things you find interesting. What would the reader most enjoy reading about?



 Gather a short list of facts and display them in your article in a separate section. This could be a caption to a picture or just a box of facts.

Writing a Scene from a play

- Choose a setting for your play. This could be anywhere you feel like writing about: a beach, a shopping mall, a school, a park, on a boat.
- Give directions for the director and actors. Write them in the present tense.
- Include lines for several actors. The actors' lines keep the story moving. To keep the play exciting, several actors can say things, not just one or two.
- 2. Writing a summary
- Start your summary by telling the name of the article, story, or other text that you're summarizing.
- Include a short introduction. This should be about the main idea of the whole text.
- Include detail from the text. Write only the most important things.
- Include very short examples if necessary.
- Remember to write the summary in your own words, don't copy the author's words. Think about what you would tell a friend if they asked what the text I about.
- When you have finished your draft, go back and read it again. Take out any information that is not absolutely necessary.

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 information that is not absolutely necessary.

Now Enjoy Watching These Movies And Write Your View About Each

Secret Magic Control Agency









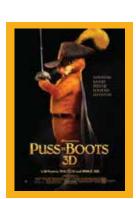
We Can Be Heroes

Mitchells Vs The Machines

Despicable Me













The Little Prince

Charlie And The Chocolate Factory









A Babysitter's Guide To Monster Hunting



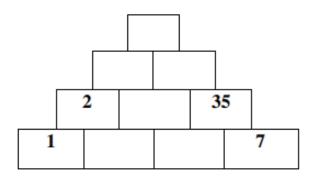
Grade 4 till 7

Grade IV

Instruction:

- Time allocated per day: 30 minutes
- All the written work should be done on rough notebook or loose sheets.

Q.1. Complete the multiplication ladder.



Q.2. The numbers on the opposite sides of this box add up to 7.

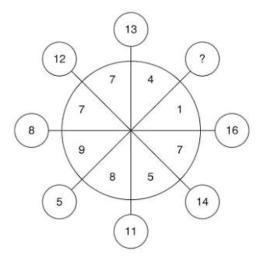


- a) Which number was on the opposite side of 5? _____
- b) Which number will be at the bottom? ____
- c) Which number was on the opposite side of 4?
- Q.3. Write a few activities that will take the time as mentioned below

Help Box: Boiling milk, drying wet clothes in the sun, growing of a plant, growing a baby, spoiling a bread, switching off a fan

- a) A few seconds ______.
- b) A few minutes ______.
- c) A few hours-_____.
- d) A few days ______.

Q.4. Solve the pattern puzzle below. Find the missing number to replace the question mark



Q.5. Solve the following.

- a) In 2014 there were 267894 visitoosstunshine water Park. In 2015, there were 31765 more visitors. What is the total number of visitors in these two years?
- b) There are 90000 horses in a field. Among them, 45098 horses go to the river to drink water. How many horses remain in the field?
- c) Wahid borrowed Rs. 5 hundred thousand from a bank. He returned Rs. 198,560 in the first installment and Rs 99, 803 in the second installment. How much more does he need to pay the bank?

Q.6. Select any 10 countries which are affected by COVID9 on a particular date, complete the table given below.

Date: _____

S.No.	Country	Total Number of Covid Cases	Write in words / Number name in International System

Q.7. When we multiple any number by 1, a zero goesin the unit's column and the digit all move one space along to the left.

When we multiply any number by 100, a zero goes in both the units and the tens column and all the digits move two spaces to the left.

Use the place value tables to multiple these number by 10 and 100.

Th	Н	Т	U
		1	5

Th	Н	Т	U
		8	2

× 10

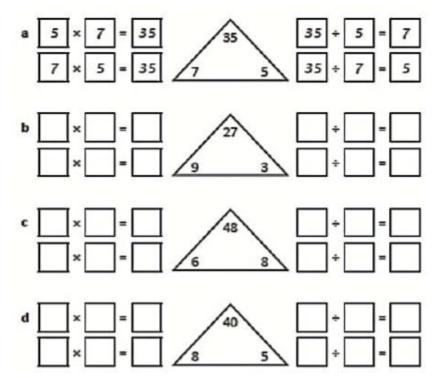
× 100

Grade V

Instruction:

- Time allocated per day: 30 minutes
- All the written work should be done on rough notebook or loose sheets.

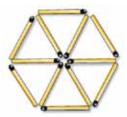
Q.1. Write a fact family for each set of numbers in the triangle. The first has one been done you.



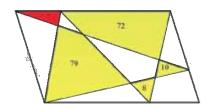
Q.2. Solve the following.

- a) Ali has two packages of candy corn that have 10 pieces each. He has five boxes of hard candy that have 6 pieces each. If Ali eats 5 pieces of his candy, how much does he have left?
- b) A company earns about Rs 288 million in six years.
- How much does the company earn in 1 month approximately?
- How many more years would it take the company to make another Rs 576 million? Give an estimate answer.
- c) There are 14 girls and 15 boys at party. Four more boys arrived and 2 girls left. How many people are atthe party now?
- d) Mr. Salman is working for an NGO. He organizes mandyonationsdrives and gathers contribution for charity.

- If Mr. Salman collected an average of Rs 8326 per month, how much donation did he collect in the last 13 years?
- This year's collection is twice of last year's. How much amount is raised this year?
- e) Amir buys 2 toys that cost Rs. 5 each. He also buys 3 toys that cost Rs. 3 each. If he gives the cashier a \$20 bill. How much change will he get back?
- Q.3. Moveany four matchestoget 3 equilateratrianglesonly (don't removematches)



Q.4. Find thearea of the redtriangle



- Q.5. Draw shapes of plane faces (square, triangle, rectangle, oval, circle) and solid bodies/3D shapes (cube, cuboid, cylinder, sphere, cone).
- Q.6. Draw the next three figures in this pattern.



3 sides



4 sides



5 sides

How many triangle are in figure with 10 sides

- Q.7. Solve the following questions
 - a) These numbers belong together in a group: 25, 40, 110, 55 These numbers do not belong in the group: 33, 71, 4, 106 Which of these numbers belong in the group? 75, 205, 87, 43

What is the rule?

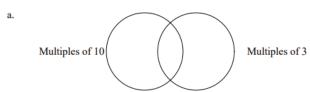
b) These numbers belong together in a group: 16, 9, 49, 64 These numbers do not belong in the group: 40, 12, 77, 28

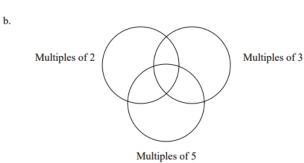
Grade VI

Instruction:

- Time allocated per day: 30 minutes
- All the written work should be done on rough notebook or loose sheets.

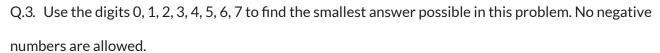
Q.1. Write the numbers in each circle that are described by the attribute written outside the circle. Numbers in overlapping regions must meet the requirements of each circle. Justify why you placed the numbers in the overlapping regions you did.





Q.2. Solve the following.

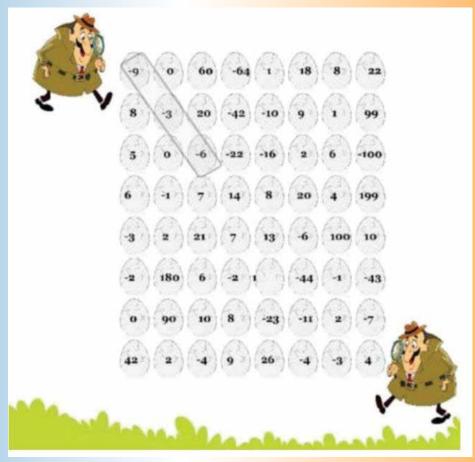
- a) How many triangles can you find in the figures below?
- b) How many different edges are used in these triangles?
- c) If the area of each of the 4 smallest triangles is the same and this area is 1 square unit, what is the area of each triangle in the figure?





Q.4. A set of 3 integers have committed a crime and are hiding now. Find all the three integers in a row, column or diagonal where the third number is the difference of the first and second. One set has been

done for you.



Q.5. Copy and complete the magic square. Fill in the square using numbers from 8 to 23 without repeating. The numbers should be arranged in such a way that the sum of the numbers horizontally, vertically and diagonally adds up to 62.



Grade VII

Instruction:

- Time allocated per day: 30 minutes
- All the written work should be done on rough notebook or loose sheets.

Q.1. Attempt at least 3 Sudoku puzzles online (refer to the link below), and record the time taken to solve each. If the third puzzle is solved in 10 minutes or less, move to the next level. Bring at least 2 print outs of solved puzzles to the class.

Sudoku link: http://www.sudokukingdom.com/

Q.2. Below is a link for 'The Arithmetic Game'. It is a fast paced speed drill where you are given two minutes to solve as many arithmetic problems as you can.

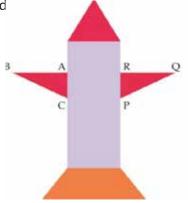
Timed mental math quzi http://arithmetic.zetamac.com/

Record your scores for 10 games (score is generated when time is up) and calculate the average. You will not be moved to the next question unless you give the correct answer!

Q.3. Set up the equations and solve them to find the unknown numbers in the cases given below:

- 1) If you add 6 to five times a number, it gives 46.
- 2) Two-third of a number minus 5 gives 11.
- 3) If you take onethird of a number and add 4 to it, gives 45.
- 4) When person X subtracts 12 from thrice of a number, it gives 18.
- 5) When Jenny subtracts twice the number of pens, she has from 40, she gets 16.
- 6) Virat guesses a number. If he adds 18 to that number and then divides the sum by 6, he gets answer 7.
- 7) Ami guesses anumber. If she subtracts 8 from two third of a number, she gets 6

Q.4. Draw these 2 triangles using same color. Cut out these triangles and paste on appropriate position for aero plane wings as given in the figure below. How many more congruent triangles can be drawn in the given figure. Draw them





Grade VII

Instruction:

- Time allocated per day: 30 minutes
- All the written work should be done on rough notebook or loose sheets.

Q.1. Attempt at least 3 Sudoku puzzles online (refer to the link below), and record the time taken to solve each. If the third puzzle is solved in 10 minutes or less, move to the next level. Bring at least 2 print outs of solved puzzles to the class.

Sudoku link: http://www.sudokukingdom.com/

Q.2. Below is a link for 'The Arithmetic Game'. It is a fastpaced speed drill where you are given two minutes to solve as many arithmetic problems as you can.

Timed mental math quzi http://arithmetic.zetamac.com/

Record your scores for 10 games (score is generated when time is up) and calculate the average. You will not be moved to the next question unless you give the correct answer!

- Q.3. Set up the equations and solve them to find the unknown numbers in the cases given below:
 - 1) If you add 6 to five times a number, it gives 46.
 - 2) Two-third of a number minus 5 gives 11.

Lorem ipsum

- 3) If you take onethird of a number and add 4 to it, gives 45.
- 4) When person X subtracts 12 from thrice of a number, it gives 18.
- 5) When Jenny subtracts twice the number of pens, she has from 40, she gets 16.
- 6) Virat guesses a number. If he adds 18 to that number and then divides the sum by 6, he gets answer 7.
- 7) Ami guesses anumber. If she subtracts 8 from twothird of a number, she gets 6
- Q.4. Draw these 2 triangles using same color. Cut out these triangles and paste on appropriate position for aero plane wings as given in the figure below. How many more congruent triangles can be drawn in the given figure. Draw them
 - Q.5. The students will be given some road signs. They will draw the line of symmetry if any. If there is no line of symmetry then they will mention that the figure is non symmetric. They will name the road sign and explain in a sentence its meaning.



Grade 4 till 7

Grade 4

Be the Scientist!

Nell had sorted the trash from his room and believes in 3R's. The target is to make a product that he can utilize in his daily life for him and his friends the only help that can be provided is a link below. Choose your favorite and engineer the model of your choice. Write notes:

- a. Which materials you used.
- b. The method of completing the model.
- c. The most challenging moment during the procedure.
- d. How the model can be useful in your daily life.
- e. Share the picture of the model with classmates.

https://www.weareteachers.com/earth-day-crafts-classroom-activities/



Grade 5

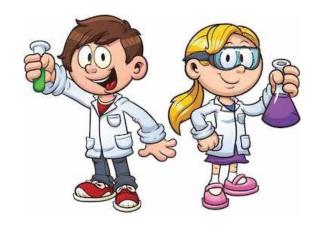
Be the Scientist!

Alexa got into woods where she was left caught on the right side of the river. The only chance to cross is the bridge which is not there.

Let's engineer the bridge where she can get a bridge with the help of materials available to her including:

wood planks, leaves, grass, rocks, sand, mud, flowers, pine cones.

- Pick only that are helpful and suitable for the need.
- Draw or construct the required model.
- Give a reason for choosing the material u liked.
- How the materials not being used are not useful.
- How many of the materials chosen are renewable and unrenewable?



Projects

Grade 6 Science Project (Electromagnetism)

Make motorized tiny dancers



Today we are getting a bit artsy with our science! Does the idea of making a wire sculpture that "dances" entice you.....? Tiny Dancers is the third project in our collaborative series STEAM POWER: Empowering kids to explore the world through creative projects. Today's topic is HARNESS!

Because harnessing refers to making use of resources to produce energy, we decided to try making a homopolar motor. A homopolar motor is probably the simplest DIY motor you can make. You need just a few easy to obtain items and it's FAIRLY simple to construct. Homopolar motors are not useful motors in anything but science experiments but they do demonstrate some interesting concepts and are fun to watch! They are also a great introduction to electricity and electromagnetism.

SAFETY NOTE:

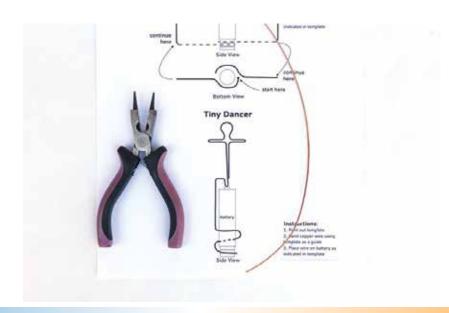
Neodymium magnets are extremely strong and MUST BE KEPT OUT OF REACH OF SMALL CHILDREN! Do not give them to any child who might put them in their mouth, they are dangerous if swallowed and must be surgically removed! This is a project for older children who can understand the precautions and I recommend ADULT SUPERVISION! For more about neodymium magnets safety and precautions go here. Additionally neodymium magnets can interfere with electronic devices so please keep them away from phones!

Also please note that these motors do heat up. See our TIPS section for safety precautions.

Tiny Dancers (A Homopolar Motor)

Note: Before we get started, I want you to know that despite this looking very easy there is a fair amount of TWEAK TIME you will need to invest to make this project work! I recommend starting with a BASIC HOMOPOLAR MTOR to get the hang of how the motor actually works, then trying your hand at making a tiny dancer. Each dancer will need to be tweaked to get them to dance properly on a battery. Don't be discouraged if at first it doesn't work, keep tweaking and see our tips sections for some trouble-

Materials



- Copper Wire- THIS is the gauge we used
- o 1/2" x 1/8" Neodymium Disc Magnets
- AA Battery
- o 3 in 1 Com bination Tool or pliers/wire cutters
- Template
- Crepe Paper (optional for skirt)
- Hot Glue (optional)

Instructions

- Steps One Cut a long piece of wire off your spool, I started with about a 10" long piece. Lay it on the template of your choice and bend as shown using 3-in 1 tool or pliers. No need to be perfect HOWEVER try and keep your form as symmetrical as possible.
- Step Two To create the base section of wire that wraps the magnets, I recommend bending the end of the wire around the battery. Remove the battery and gently widen the circular wire form with your fingers.
- Step Three Place three neodymium magnets on the negative side of your battery.
- Step Four Place the motor on top of the battery so that it touches the positive pole. The round section at the bottom of the motor must be low enough to encircle the magnets!
- Step Five Let it go. If properly constructed it should start to spin. If it doesn't see our tips below.
- Step Six (optional) to make a skirt for your dancer cut a small circle of crepe then cut a slit in the center of the circle. Slide it up onto the dancer and secure in place with a dab of hot glue.



Tips

- o MONITOR THESE FOR HEAT! Some of the motors that got going really fast heated up quite quickly. If you notice a battery getting usually warm stop the project, let it cool down and remove the magnets. I recommend against reusing a battery that got overheated. Instead replace it with a fresh battery. One educator warned me about a defective battery that peeled open during this experiment. Please monitor the motors closely as they spin.
- o Start with your basic homopolar motor. It's easy to bend and shape and you should have success with it. The dancers require more time to fine tune.
- o Keep the forms as symmetrical as possible! Since they spin on an axis if they are not symmetrical and/or balanced they will spin off the battery! This happened to us all the time. If they do spin off try and bend the form slightly to get them balanced on the battery.
- o To make the head of the dancer, bend your wire around a pencil.
- Thin wire does not work! We tried this with very thin copper wire at first and it did not work. Stick to heavier gauges. Here is the gauge we used.
- o The templates are meant as GUIDES ONLY! The motors will need to be fine-tuned by hand by you!
- o Remove the magnets immediately after running your motor. They will drain your motor if kept attached.
- o When the electrical circuit is completed you will hear a very low buzz.

Troubleshooting

- If the motor does not work try turning your magnets upside down and reversing the polarity. I found this did the trick most of the time.
- The batteries burn out quickly! If turning the magnets upside down doesn't work, try replacing your battery with a new one.
- Make sure that the bottom section of wire encircles the magnets. If it doesn't your motor will not work.
- Be sure your wire is free to move around the battery and magnets. If it's too close to the battery or magnet it will get stuck and be motionless.
- I read that you can use a nail to put a small indentation in the top of your battery to help keep the motor in place. I highly recommend AGAINST doing this. I tried it! One small and light dent worked and the next dent smashed a hole in the battery causing battery acid to spin on my counter! Eek! I decided off balance motors were better than battery acid splashes.

Grade 7 Science Project

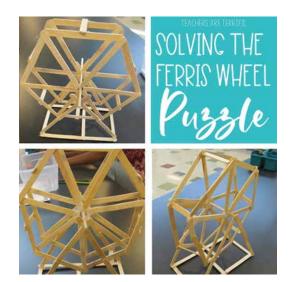
LET'S SOLVE THE PUZZLE OF THE FERRIS WHEEL

Oh, my! What have we been doing in the lab? This was one of our favorite challenges last spring and in some summer school classes!

It's Ferris wheels! Do you remember the first time you rode a Ferris Wheel? I do! It was at an October Fest in Germany and the Ferris Wheel passenger cars were quite large and round (like the ones in the photo below). The center pole in the passenger car had a wheel on it and you could turn that wheel to make the passenger car travel around and around. Just think about how dizzy this would make you as you swirl around in a circle while going around in a circle!

This little challenge is part of a trio of challenges that are all about summer vacation theme park rides- Ferris Wheels, Roller Coasters, and Water Slides. These are perfect for summer or the month of August as kids head back to school! They are also perfect for any time of the year!

This post features the magnificent Ferris Wheel!



In this post, for your convenience, you may find Amazon Affiliate links to resources. This means that with your purchase of items Amazon will pass on small percentages to me. This will not create extra costs for you at all! It will help me keep this blog running!

HISTORY OF THE FERRIS WHEEL

First, of all, do you know why Ferris wheel must be capitalized? It's named after the inventor Mr. Ferris!

This happened in 1893 when the director of the Chicago World's Fair wanted a gigantic, unique, and amazing structure to rival the Eiffel Tower which had been the feature at the previous World's Fair in Paris. The director challenged a group of engineers to design something bigger and better and Mr. Ferris came up with the Ferris wheel. His structure was 250+ feet tall with 60 passenger cars. People paid fifty cents to ride the Ferris wheel which meant about a two-revolution ride that took 20 minutes. Sadly, that original Ferris wheel was destroyed a few years later.

After we learned all this trivia about the first Ferris wheel my students were ready to build models. Only they didn't have steel beams. They had craft sticks and glue.

TIP: If you try this project you are going to need craft sticks! Don't be fooled by the dollar store variety- get the giant box- like this one:



They last forever, can be reused, and are much more economical than the dollar store packages! THE GEOMETRY OF THE WHEEL

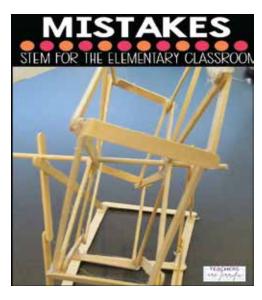
To the right you can see a step-by-step set of photos. This shows the way kids created triangles and then a hexagon to make each side of the wheel. Next, they had to build a frame and join their two sides. We had some fabulous models.

We had to work through making a hexagonal shape and then joining the two sides together. It was also really important that the two sides were symmetrical and joined properly.

We had to work through making a hexagonal shape and then joining the two sides together. It was also really important that the two sides were symmetrical and joined properly. Otherwise, you ended up with a wonky wheel that would not turn. This happened a lot! But, one of the things I love about STEM is that kids make mistakes and then try something else. When their misshapen wheels were not turning, they took the whole structure apart and were more diligent about laying those craft sticks in a good arrangement but with each side matching. It was like the ultimate jigsaw puzzle.

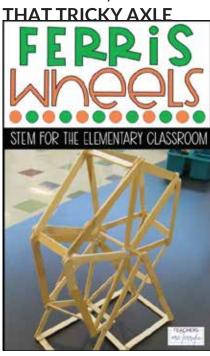


WE MADE A FEW MISTAKES!



Matching the two sides of the wheel proved to be challenging!

Yep, I'm going to say that the above group didn't quite match up their wheel sides correctly.



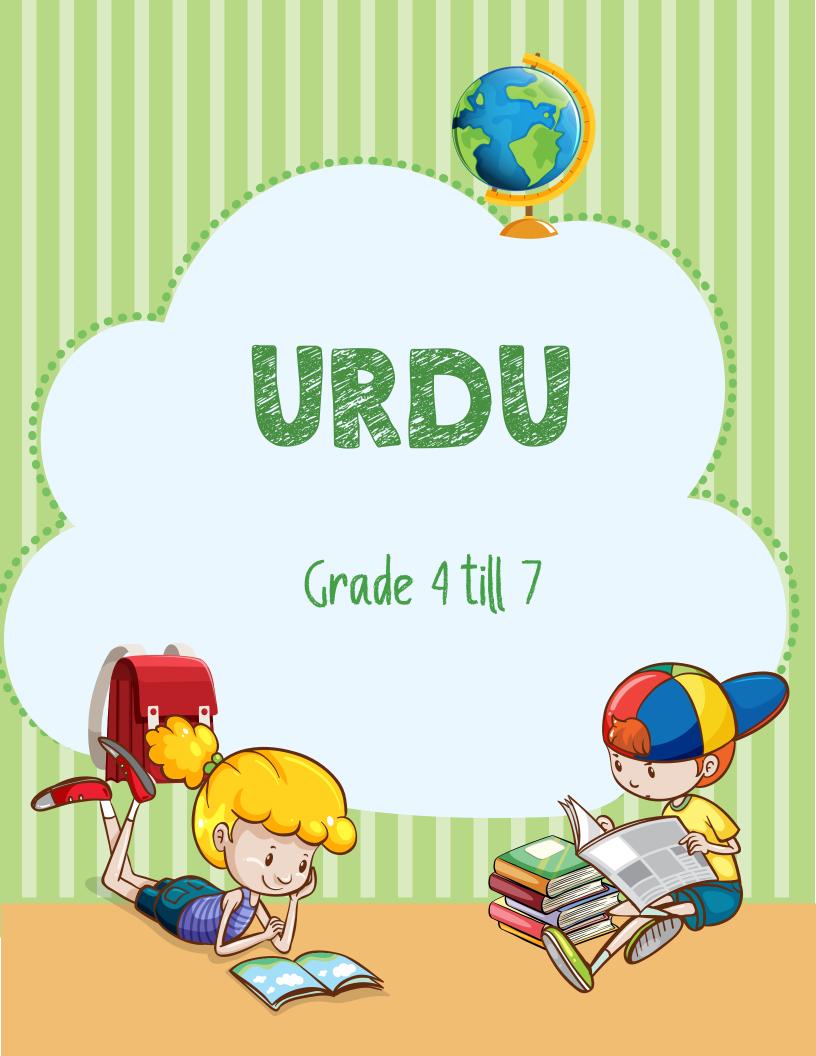
Another big thing that kept happening is that an axle had to go through the wheel. This meant the kids had to leave an opening! Some groups paid no attention to this minor detail and ended up with the center of their wheels being a stack of craft sticks, but no place to thread the axle. And, yes, they took that apart and started over. This was a fabulous challenge for persistence! In the photo below you can see a center area that worked perfectly. However, that wheel still has a mistake!

Some of our mistakes were really interesting. Look closely at the photo above. Can you spot the mistake?

It's not a hexagon. That Ferris wheel has SEVEN sides! But, y'all, look at it. It's pretty perfectly matched and it did work very well! How on earth did that team make a seven-sided shape? Do you know how hard that is to do on purpose?

MAJOR PROBLEM SOLVING

This was an exciting STEM challenge! Even though the Ferris wheels all looked very similar when finished it was still unique to each group. They all approached the task differently. Some matched the wheel sides by laying them on top of each other. Some actually measured. Some just eyeballed it and hoped it worked.



جماعت چہارم / پنجم

سوال نمبرا: مطالعه كهاني

کوئی سی پانچ کتابوں کا مطالعہ کریں۔مطالعہ کرنے کے بعد کہانی کے مصنف کانام اور کہانی کے اہم کردار کھیں۔

مصنف کانام اور کہانی کے اہم کردار کھییں۔

ہر کہانی میں سے اپنے پیندیدہ کردار کا نام کھیں اور پیندیدگی کی وجہ کھیں۔

سوال نمبر ۲: پیرا گراف

ا۔ میرا پیندیدہ موسم

۲ _ میں اپنی گرمیوں کی چھٹیاں کیسے گزاروں گا۔ گی

س ٹیلی وژن کے فائدے اور نقصانات

۳۔ اخبار بینی کی اہمیت

۵۔ پاکستان میں عید الاضحی کیسے منائی جاتی ہے

سوال نمبر۳: کتا بچید

پاکتان کے پانچ صوبوں سے متعلق معلومات اکٹھی کر کے ایک خوبصوت تصویری اور تحریری کتابچہ بنائیں۔ سوال نمبر ہم: خطوط نویسی۔

ا۔ اپنے پہندیدہ مصنف کو خط لکھ کر اپنے پہندیدہ کردار سے ملنے کی خواہش کااظہار کریں۔

٢- اپنے والد صاحب کو خط لکھ کرانھیں اپنے امتحان میں کامیابی سے متعلق آگاہ کریں۔

س۔ اپنے ماموں کو خط لکھیں اور آپ کی سالگرہ میں بھیجے ہوئے تحفے کا شکریہ ادا کریں۔

، اپنی استانی کوشکریه کا خط لکھیں کی گرمیوں کی چھٹیوں میں انھوں نے لائیریری میں بیٹھ کر کتابیں

پڑھنے کے اجازت دی۔

۵۔ اپنے دوست کو خط لکھ کر اسے کھیلوں کی اہمیت مثلا فٹ بال، کرکٹ،والی بال، کے بارے میں بتائیں۔

سوالنمبر ۵: آپ بیتی

ا۔ ایک کرسی کی آپ بیتی

۲۔ ایک کتاب کی آپ بیتی

س۔ ایک درخت کی آپ بیتی

م- کرکٹ بلے کی آپ بیتی

۵۔ ایک بستے کی آپ بیتی

سوال نمبر ۲۔ لغت بنائیں۔

آپ نے جن کتابوں کا مطالعہ کیا ان میں سے کوئی سے پچاس الفاظ چن کر ان کے معانی، متضاد، مترادف اور جملے بنائیں۔

مثال: _

مترادف	متضاد	معانی	لفظ

جملہ:۔

جماعت ششم/ مفتم

کوئی سی پانچ کہانیوں کا مطالعہ کریں۔

مطالعہ کرنے کے بعد کہانی کے مصنف کا نام اور کہانی کے اہم کردار لکھیں۔

ہر کہانی میں سے اینے پیندیدہ کردار کا نام کھیں اور پیندیدگی کی وجہ کھیں

سوال نمبر ۲۔ دیئے گئے عنوانات پر بیر گراف لکھیں۔

س۔ موبائل کی تباہ کاریاں

۱۔ بہاڑی علاقے کی سیر

۳- ماحولیاتی آلود گی

۲- میرایبندیده استاد

سوال نمبرسا: خطوط نویسی۔

ا ۔ اپنے دادا , دادی کو خط کھیں اور انھیں covid-19 vaccine گلوانے کے لئے قائل کریں۔

۲۔ اپنے دوست کو خط لکھ کر اپنے شہر اسلام آباد آنے کی دعوت دیں اور اسلام آباد کے مختلف تفریحی مقامات کی سیر کروائیں۔

س۔ اپنے چیوٹے بھائی کو خط لکھ کر اسے کتاب بینی کی اہمیت بتائیںاور تاکید کریں کہ اپنی پبندیدہ کتاب کے بارے میں آپ کو مطلع کریں۔

سے اپنی پرنسل کو خط لکھ کر آپ اسکول میں تعلیم سے متعلق کیا بہتری چاہتے ہیں انھیں آگاہ کریں۔

۵- پاکستان کے وزیراعظم کو خط کھیں اور شجر کاری کی اہمیت بیان کر کے انکی شجر کاری مہم میں شرکت کی

درخواست کریں۔

سوال نمبر سم_مكالمه نگاري

دو دوستوں کے درمیان مکالمہ تحریر کریں۔جس میں کرونا سے متعلق معلومات کا ذکر اور کرونا کی چوتھی لہر

سے بچاو کی تجویزات پیش کریں۔

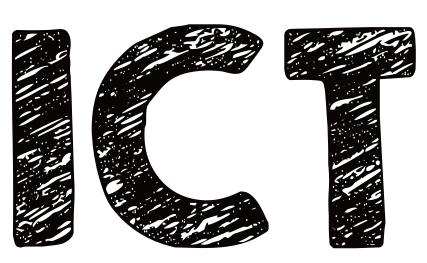
سوال نمبر۵ : کتابچیه

کوئی سے پانچ مسلمان سائنسدانوں کے متعلق معلومات اکٹھی کریں اور ایک خوبصورت معلومات کتابچہ بنائیں۔ سوال نمبر ۲: لغت بنائیں

آپ نے جن کتابوں کا مطالعہ کیا۔ان میں سے پچاس الفاظ چن کر ان کے معانی متضاد، مترادف اور جملہ بنائیں۔

مترادف	متضاد	معانی	لفظ
			جمله:-





Grade 4 till 7



Can you color your name on the keyboard in BLUE color?



laptop is a portable computer. Portable means that it can be carried around easily while the desktop computer is difficult to move.





Carefully read the scenarios and recommend a computer type accordingly. Justify your answer as well.

Scenario	Computer Type	Why?
A computer at a fuel station.		
An engineer responsible for testing network connectivity.		
An astronaut deployed in the international space station.		
An international businessman.		
A defense system installed on a tank.		
A multinational organization.		
An adventure photographer.		
A DJ having a large number of track records.		
A professional computer gamer.		

SUMMER TASK 2021

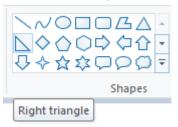
The Microsoft Paint is a built-in graphics editing tool present in Microsoft Windows. It is used to create graphics and perform art work.

- 1. Turn on your PC/Laptop and wait till the desktop appears.
- 2. Click on the start icon located at the bottom right corner of your screen and a menu will appear.
- 3. Type paint and wait for results.
- 4. Open up Microsoft Paint by clicking on this icon and draw the image given below.



Now, write the steps involved in creating this drawing. Along with the names of the tools used.

Hint: If you hover your mouse cursor on the tool, its name will pop up like this:



It is shown that the tool on which cursor is placed is a right-triangle shape tool.

1.	
2.	
4.	
5.	
6.	
7.	
8.	



nput Devices. All the devices which are used to enter the data **into** the computer system are called Input Devices.

Output Devices: The devices which are used to get the results **from** the computer system are called output devices.

Differentiate between the Input and Output Devices given below.



Ctorage Devices are used are the peripherals used to store data.

Write the features of the following storage devices. You may use the internet to research.









Memory Card	Flash Drive	Hard Disk Drive (HDD)	Solid State Drive (SSD)



The conventional definition of computer states that "A computer is a digital machine which takes Input, Processes it and shows Output". This process is also known as IPO.

Match the following processes according to the IPO cycle.

INPUT	Boiling water, tea leaves, milk and sugar
PROCESSING	Prepared tea
OUTPUT	Water, tea leaves, milk and sugar



nternet stands for **Inter**national **Net**work. A network is an interconnection of two or more computers. So basically, internet is the largest network of computers connected together to exchange data and information.

Use the internet to research the advantages and disadvantages of using the internet and write them below.

Advantages	Disadvantages

SUMMER TASK 2021



rtificial Intelligence is the branch of computing that deals with inducing human like thinking and decision making abilities into machines. It basically is an act of making the computers adapt certain behavior based upon machine training/learning.

Think of some advantages and disadvantages of having Artificial Intelligence in our computers.

Advantages	Disadvantages



Softwares are basically computer applications written in programming languages to perform specific tasks.

ardware components are the tangible peripherals of a computer system. They're the physical devices designed to perform different tasks.

Given below is a list of softwares and hardware devices. You're required to write their functionalities in the given space.

Name	Туре	Function
MS Word	Software	
MS Paint	Software	
MS Windows	Software	
MS PowerPoint	Software	
MS Excel	Software	
Scanner	Hardware	
Printer	Hardware	
Fax Machine	Hardware	
Plotter	Hardware	
SSD	Hardware	



istory of computer dates back to 1940s when the first-generation computers were introduced. In these eighty or so years, we have done wonders. From the time where a whole special building was constructed to fit in a computer, we have come to a time where we can fit a computer in our pockets.

Could you research on the internet and write the comparison of different generations of computers?

First	Second	Third	Fourth	Fifth



ata Representation is an important subject when it comes to computing.

Just remember that Byte < Kilo Byte < Mega Byte < Giga Byte < Tera Byte etc.

If 1KB = 1024 Byes and 1MB = 1024 Kilo Bytes. Fill in the missing entries in the below table.

Data 1	Data 2
3MBs	KBs
1GB	1024 MBs
60GB	MBs
4TB	GBs
20GBs	<u>20971520</u> KBs
1KB	Bytes





perating System is the most essential software of the computer system. It contains the set of instructions necessary to run the computer system and without these instructions, a computer system cannot function.

Microsoft Windows 10 is the latest and current version of the Windows Operating System launched by the Microsoft Corporation. It is important for a computer user to get to know the operating system of the computer machine.

Use your computer/laptop and write the features of Microsoft Windows 10. You may use the internet for your help. Especially write the several benefits it has offered over Microsoft Windows 8.1.

	Features of Microsoft Windows 10		
1.			
2.			
3.			
4.			
5.			



Computer Network is an interconnection of two or more computers. It is very beneficial to connect computers together.

Can you think of some advantages and disadvantages of a computer on a network?

Advantages		Disadvantages
1.		
2.		
3.		
4.		
5.		





omputer Virus is a program containing malicious instructions that disturb the normal functioning of a computer system. It is purely made to destroy the data of other users.

Write the names of most common viruses found worldwide and how do they attack?

Viruses		Way of Attacking
1.		
2.		
3.		
4.		
5.		



n Antivirus Software is a program designed to clean the computer from viruses and prevent the viruses from infecting a computer system.

Write the names of most common antiviruses found worldwide and the features they offer.

Antivirus		Features
1.		
2.		
3.		
4.		
5.		



Grade 4

As the world is progressing towards advanced technological measures, everything has started to take the digital shape. The academic content backed up by relevant skills tend to make the profile of a ward strong.

Roots International Schools, since its inception has been focused upon the academic betterment of the students styled on the modern educational system. The education system designed on the three E's, *Exposure*, *Expansion* and *Exploration*, RIS is keenly determined to ensure that the students get a hands-on experience of the modern era tools.

Activity

<u>Logo Designing:</u> A logo is a symbol made up of text and images used to identify a business. It aids in promoting the brand recognition.

The students of Grade 4 are required to create a logo using *Microsoft Paint, Photoscape* or any other graphics editing tool.







Here are the logos of well-known organizations. You're required to create any **three** logos. Please write the name and description of the company along with your logo.



Grade 5

As the world is progressing towards advanced technological measures, everything has started to take the digital shape. The academic content backed up by relevant skills tend to make the profile of a ward strong.

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Activity

<u>Presentation</u>: A presentation is the process of presenting a topic to an audience. Whether it could be a demonstration, introduction, lecture, speech or an idea. Presentation helps in pitching the idea to the audience and ensure that it gets perceived well.

The students of Grade 5 are required to make a presentation using *Microsoft PowerPoint Prezi* or any other presentation making tool.



You will have to make <u>three</u> presentations out of which <u>ONE</u> should at least be made using Prezi. Topics may be of your choice but ensure that the graphical elements, transitions and effects are used in the presentation.



Grade 6

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Activity

Photo Scavenger Hunt: Photo Scavenger basically is a fun-based activity. All you have to do is, take pictures of <u>all</u> the activities given in the below checklist.



The Checklist:

- 1. Take a group photo with your friends (at least 3 including you) riding bicycles.
- 2. Capture photo with something blue and not wearable.
- 3. Make a collage of pictures with vehicles of at least 5 companies.
- 4. Capture a photo of someone being a statue.
- 5. Get your photo captured while taking a swing.
- 6. Capture a selfie with something red and eatable.
- 7. Capture a photo while doing kitchen chores.
- 8. Capture a photo having a hot-drink in rain.
- 9. Capture a photo while carrying grocery bag(s).
- 10. Finally, capture a photo while planting a tree and watering it.

Remember, you'll have to create a digital album of the pictures you've taken and represent them in a slideshow. Each picture must have a caption, timestamp and watermark containing your name and campus.



Grade 7

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Activity

<u>Comic Book Making:</u> A comic book/magazine is a publication that contains visual arts in the form of a sequential panels representing the scenes of a story. It is a medium of expressing ideas in a fun to read way.

The Grade 7 students are required to make a comic book of at least 25 pages. All having theme, graphics, character names and well-crafted story.



Tools you'll be using:

Microsoft Word

Microsoft Paint / Photoscape / Adobe or any other photo/graphics editing tool you're comfortable with.

Remember to use all the graphical elements, effects, shadows and color tones.

When you're done, you'll have to color print your comic and get it stapled.

ROOTS INTERNATIONAL SCHOOLS & METROPOLITAN NATIONWIDE **INTERNATIONALUNIVERSITY COLLEGE** CAMPUSES





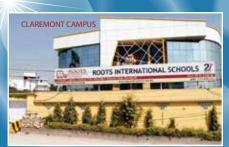




























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