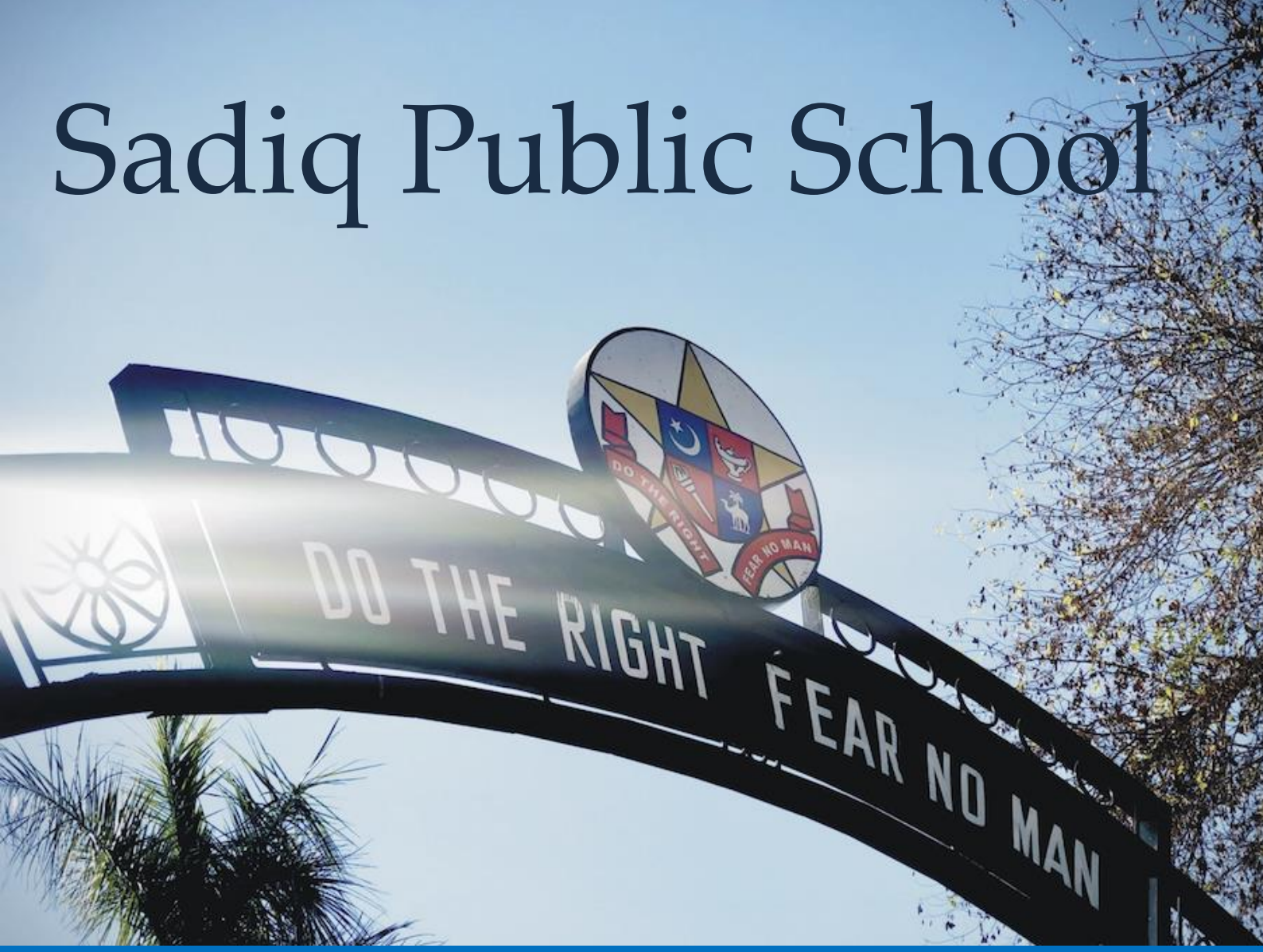
Sadiq Public School



Distance Learning for C1

August-September 2020

Sadiq Public School

Do the right, fear no man

Distance Learning

July, 2020

Dear students and parents,

Assalam o aleikum.

Inshallah all of our students and their families are staying home, staying safe, and protecting themselves and their communities in this most unusual situation. We understand as well as anyone how difficult it is to be living in such a situation. If we all follow the government's very simple guidance the situation will improve very soon, as it has in many countries around the world, and our lives can get back to normal.

The Government has announced that Schools will likely be allowed to re-open on September 15th, 2020. Let me be clear – Sadiq Public School is planning for a full school year from September 15th 2020, i.e. with the appropriate number of school days to ensure our students complete their normal syllabuses well in time for their annual examinations without compromising too much on the remainder of our unique, holistic curriculum that includes sports, clubs, and community service – and self-discipline (doing the right thing at the right time).

After a considerable amount of thought and planning, after considering the many factors associated with distance learning including health and safety risks to children of being online for too long and unsupervised, costs of technology/devices/software, and the expected/likely outcomes, we have decided to offer a package of distance learning activities for students to do some school work. These activities are NOT intended to replace in-school, teacher-student learning activities and they are NOT compulsory for students to complete. The team of education experts at Sadiq Public School very strongly believe that education, i.e. meaningful learning, happens best when teachers and students interact, face to face, spontaneously.

We also understand that the Sadiq Public School family is very diverse and what will work well for a K2 student living in Bahawalpur probably will not for a K2 student living in Quetta or a P6 student living in Karachi. This is a self-contained, age-specific package of learning material prepared by SPS teachers for SPS students. You will not need to use the internet and you will not need textbooks or any other material except a normal, lined school notes book (a separate one for each subject) which you will bring back to school when lessons resume. We decided to create an e-booklet so it can be published and distributed to students and parents without needing to be printed and sent by

post/courier out of concern for our environment. (There is an interesting hypothesis that the coronavirus outbreak is due to deforestation.)

Everyone's health is the top concern right now. Learning some mathematics right now is less important than protecting your health and your family's health. Not just your physical health, but also your mental health. We understand that these last few and next few months have been and will be difficult. It is very normal for everyone to be feeling worried and anxious. In such times, it is important to recognise your anxiety, understand what is causing it, and learn how to manage it by being kind to yourself, patient with others, eating well, sleeping well, doing some physical activity (there's a whole section about this later in the booklet), and trying to maintain a positive outlook. The virus outbreak will pass. We will all return to our normal lives. Inshallah!

Be happy. Not because everything is good, but because you can see some good in everything.

Yours Sincerely,

Mr Peter Giddens
Principal

Contents

How to achieve academic success at Sadiq Public School

Our approach to teaching and learning is based on the knowledge that learning only occurs when cognitive effort is generated to the extent that information is made into a long-term memory that can be readily recalled. We use traditional teaching methods informed by current research in education and pedagogical practices.

The Sadiq Public School approach is based on:

1. Teachers impart knowledge and skills using a variety of media – talking/lecturing, written notes and diagrams on a whiteboard, demonstrations, initiating practical activities for students to experience what is being learnt.
2. All lessons are taught on the assumption that as the course unfolds, students are creating their own class notes.
3. Students use one standard textbook for each subject; the book recommended by the School. Students possess and use one lined or gridded copy book per subject, into which class notes are created. (Thinner books with less pages are preferable, to minimise the weight being carried from lesson to lesson. If students require, additional copy books should be used – but always a separate book for separate subjects.
4. A student's class notes are created from a combination of teacher-guided media and student-created media.
5. The class notes should replicate/mirror the course outline and the textbook chapter headings so that students can clearly see that their class notes match the course and the examination.
6. Teachers will show students how to use note-taking/making techniques such as underlining, using different colours, diagrams, lists, boxes, etc.
7. In general, the first half of the copy book is for class notes and the second half, indicated with some form of marker is for practice activities, e.g. homework tasks, the questions at the end of a textbook chapter, etc.
8. Students MUST keep a complete and neatly presented set of class notes. If a student misses a lesson, it is his/her responsibility to add in missed work. This may be done by copying another student's copy book.
9. Frequently, teachers will check students' copy books for completion, neatness, accuracy, etc., and to write personalised / individualised feedback to students.
10. Occasional paper handouts may be trimmed and pasted neatly into a copy book, but this should be kept to a minimum because the act of writing/drawing the class notes into the copy book is the student's first step in learning the material being taught by the teacher. Pasting handouts into copy books teaches students how to use a glue stick and scissors; it does not teach a student anything about the material on the handout.

Writing class notes is the basis of our teaching and learning – but of course this is supported by other experiences such as demonstrations, practical activities, etc.

Examination preparation

In the weeks before examinations, students would typically use the class notes and text book to create a set of study notes by re-writing, often in short-hand/note form, using diagrams and mnemonics etc. Doing this reinforces and consolidates the student's class notes. Students would also complete the questions at the end of each chapter on their own. They would attend lessons and, under the teacher's supervision, complete individual exam questions from past papers, in such a way that the teacher 'unpacks' a question, clarifies the demands of the question, and students and teacher collectively create 'perfect' exam answers – all of which models how a student would take an examination, i.e. read the question, unpack the requirements of the question, clarify key terms/vocabulary in the question, pause, think, plan an answer, and then write an answer.

If you can, now is a good time to buy and prepare your notes books for each subject, ready for when you return to school.

You can use these notes books to write your answers/essays/responses to the activities in this booklet.

1. English Language

1. Read children's corner in any English newspaper. Make a list of new and interesting information of general knowledge in your note book with separate headings e.g. information about wild life, solar system, computers, inventions etc.

2. Write essays on the given topics. (word limit 200-250)

- An unforgettable incident that taught me a lesson
- A memorable day that I spent with my grandparents
- Importance of pollution free environment
- How does travelling around the world affect one's life and personality?

3. Watch several interviews on television and pay attention to the questions asked. Observe the body-language of the interviewers. Prepare at least 8 questions about the early life, education, profession, likes and dislikes of three persons at your home and conduct an interview. (You may interview your grandparents, neighbours or close relatives). Convert the interview into an article about the person you interviewed.

4. Watch several English-language non-fiction television programme of your choice (for example Animal Planet, Nat. Geo Wild, National Geographic) and write reviews on 3 of them keeping good points of the movie, what did it add to your knowledge?

5. Watch a movie and describe the 3 main characters, the plot, and the setting. Write a review that could be published in a newspaper – a review gives your opinion but of course opinions should always be balanced and supported by evidence.

6. Read an English-language novel (fiction) and write a book review. Write about the following points: plot, characters, theme, and setting. Give your balanced and evidence-based opinion about the book. Would you recommend it to others? Who would most like to read it? Why?

7. Write a fictional story with a moral (message) and the characters will be a mongoose, an eagle, and a squirrel. Give them names and personalities. Think first about the message/moral of the story, so think about the story's ending and create a plot towards that ending.

8. Some people have been complaining that school has been closed for so long – but one day you will be able to tell stories to people about the time you had the longest summer vacation EVER!! What have been the highlights – what will you remember about this time 20 years from now?

9. Write a travel article for a magazine or newspaper about somewhere you have visited in Pakistan. Travel articles are always informative and positive and enthusiastic, aiming to encourage others to visit the place being written about. They usually include information about how to get there, where to stay, what specials things can be done or seen there and usually something interesting about the people there. Here are some possible places: Taxila, Mangala Dam, Tharparkar Desert, Cholistan Desert, Lake Khanpur, Lahore's Shalimar Gardens, the Wagha Border Crossing, Bahawalpur, Karachi, Bumburet Valley, the top of Tirich Mir…

2. Urdu Language

1۔ اسلام کے نظام زکوٰۃ اور صدقات پر 150 الفاظ پر مشتمل مضمون تحریر کریں۔

2۔ پاکستان کے شمالی علاقہ جات کی سیر کے حوالے سے 200 الفاظ پر مشتمل رپورٹ تحریر کریں۔

3۔ شجر کاری کے موضوع پر استاد اور شاگرد کے درمیان 200 الفاظ پر مشتمل مکالمہ تحریر کریں۔

4۔ پاکستان میں گیم "پب جی" پر پابندی کی وجہ سے آپ کا چھوٹا بھائی پریشان ہے جو پب جی کا ازحد شوقین ہے۔ اس کو خط لکھ کر اس گیم کے نقصانات کے بارے میں آگاہ کریں۔ (200 الفاظ)

5۔ مختلف قومی اخبارات میں شائع ہونے والے پسندیدہ اردو آرٹیکلز میں سے کوئی سے 3 آرٹیکلز کا خلاصہ تحریر کریں۔ (100 الفاظ)

6۔ سکول کی چھٹیوں کو مؤثر بنانے کے لیے ماں اور بیٹی کے درمیان 200 الفاظ پر مشتمل مکالمہ تحریر کریں۔

7۔ پاکستان کے کسی تاریخی مقام کی سیر کی رپورٹ تحریر کریں جو 200 الفاظ پر مشتمل ہو۔

8۔ پاکستان کے دیہاتوں میں آمدورفت کے حوالے سے پیش آنے والی مشکلات پر ایک مضمون تحریر کریں۔ (150 الفاظ)

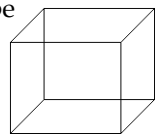
9۔ اپنے استاد کو خط لکھ کر کمرہ جماعت سجانے کے حوالے سے تجاویز تحریر کریں۔ (200 الفاظ)

10۔ ٹی وی پر دیکھے جانے والے پسندیدہ اردو ڈرامے کا خلاصہ تحریر کریں (100 الفاظ)

3. Mathematics

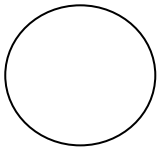
Project:

a) Draw the geometric figures given below on a chart paper and complete this table.

Characteristics/Formulas of Geometric Shapes						
Geometric Shape	No. of Faces	No. of Vertices	No. of Edges	Shapes of Faces	Volume of Shape	Surface Area of Shape
Cube 	06	08	12	All squares.	$V = l^3$ where l is the length of side	$S.A = 6l$ where l is the length of side

Shapes are: cube, triangular prism, rectangular prism, cylinder, sphere and cone.

b) Draw the shapes given below on a chart paper and complete this table.

Geometric Shape	Lines	No. of Vertices	No. of Sides	Area	Perimeter
Circle 	Curvy	Nil	Nil	$A = \pi r^2$	$C = 2\pi r$ where r is the radius.

Shapes are: circle, triangle, square, rhombus, rectangle , trapezium, octagon, hexagon, oval. The area and perimeter of octagon, hexagon and oval are not included.

Questions

Q1) Plot the given points on a sheet of graph paper. Join the points in order and identify the shape.
$(0,7), (2,7), (2,5), (-4,1)$

Q2) 70% of the books on a bookshelf are English books. If there are 35 English books on the bookshelf, find the total number of books.

Q3) If 10% is deducted from a bill, Rs.58.50 remains to be paid. How much is the original bill?

Q4) Given that $3a: 7 = 8: 5$, Find the value of a.

Q5) There are 14 boys and 25 girls in a school badminton team. Find the ratio of:

a. the number of boys to girls,

b. the number of boys to total students.

Q6) The speed of a car is 30 km/h express this in m/s.

Q7)Find the third angle of isosceles triangle if base angle is 40^o.

Q8)Find the sum of interior angles of a 15-gon.

Q9)Construct an equilateral triangle with sides 8.5cm.

Q10) Draw a line of 7cm. Construct a perpendicular bisector.

Q11) Construct a triangle ABC when AB = 5cm, BC = 9cm and $B\hat{A}C = 90^o$. Measure and write down length of AC.

Q12) Express

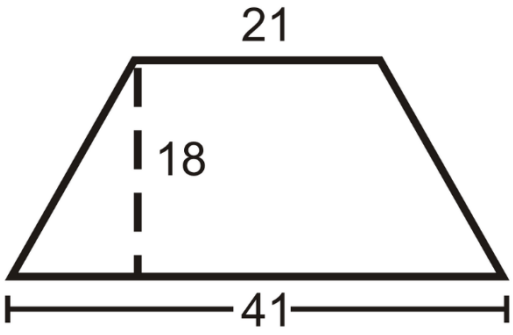
a. $40m^2$ in cm^2 b. $56000cm^2$ in m^2

Q13) Find the radius, diameter, and area of the circle if the circumference is 220mm.

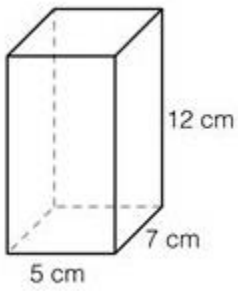
Q14) Find the height of the parallelogram if base is 16m and area of parallelogram is $144m^2$.

Q15) Find the area of trapezium if height is 9cm and parallel sides are 11cm and 17cm.

Q16) Find the area of



Q17) Find the volume and surface area of



Q18) Solve each of the following equations:

a) $\frac{1}{3}x + 3 = 4$

b) $\frac{y}{2} - \frac{1}{5} = 2 - \frac{y}{3}$

c) $\frac{2}{x} = \frac{4}{5}$

d) $\frac{x}{2} + 9 = 5$

e) $\frac{3z-1}{2} = \frac{z-4}{3}$

Q19) A car leaves Town A at 21 15 on Wednesday and arrived at Town B $5\frac{1}{2}$ $hours$ later. At what time and day the car arrives at Town B?

Q20) A train left a station at 8.45 a.m. and arrived at its destination at 3.14 p.m. How long did the journey take?

Q21) Ali leaves his house at 08 37 and travels by motorcycle to the railway station, if he arrives at the station 36 minutes later, find his arrival time. Also if the train which is due at 09 42, is 11 minutes late, how long will he have to wait?

Q22) Solve each of the following equations:

a) $\frac{2y+3}{4}+\frac{y-5}{6}=0$ b) $\frac{y}{2}-\frac{1}{5}=2-\frac{y}{3}$

Q23) If $t=\frac{v-u}{a}$, find the value of a when $t=3, v=2\frac{1}{2}$ and $u=1\frac{1}{3}$.

Q24) If $k=\frac{p+2q}{3}$, find the value of p when k = 7 and q = 9.

Q25) If a number is tripled, it gives the same result as when 28 is added to it. Find the number.

Q26)

a) On a sheet of graph paper, using a scale of 1cm to represent 1 unit on the x-axis and 1cm to represent 2 units on the y-axis, draw the graph of each of the following functions for values of x from -4 to 4.

i) $y=3x+7$ ii) $y=3x+5$ iii) $y=3x-3$ iv) $y=3x-6$

b) What do you notice about the lines you have drawn in a?

Q27) For each of the following, express the first quantity as a percentage of the second quantity.

a) 1 year, 4 months

b) 15mm, 1m

Q28) Find the value of each of the following:

a) 56 7/8% of 810m b) 2000% of 5 cent

Q29) A house costs 36% more today than when it was built. If the cost of the house today is Rs.333 200, find its cost when it was built.

Q30) 126 parts of pure gold are mixed with 42 parts of an alloy A. Find the ratio of:

a) total parts to the pure gold,

b) alloy A to the pure gold.

Q31) Given that the nth term, T_n of a sequence is $T_n=2n+5$, find

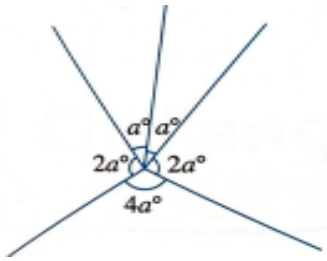
i) the 5^{th} term,

ii) the 8^{th} term,

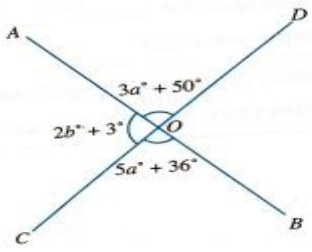
iii) the lowest common multiple of the 5^{th} and 8^{th} term of the sequence.

Q32) Given that AOB and COD are straight lines, find the value(s) of the unknown(s) in the following:

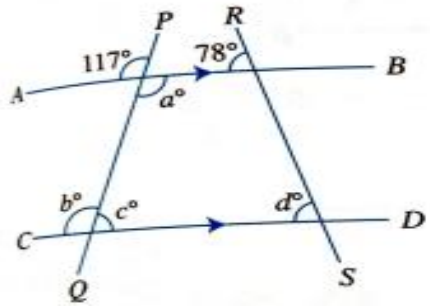
a)



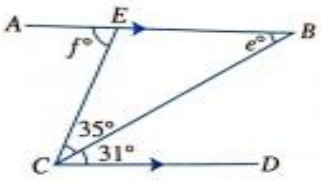
b)



Q33) Given that AB // CD, find the values of the unknowns in each of the following:



(b)



Q34) Find the value of the following:

$$6 - 7 + 2 \times (4 - 3^2)$$

Q35) A holiday resort C is located at the top of a hill, which is 314m above sea level. A tourist attraction D lies at the bottom of a valley which is 165m below sea level. Represent the altitude of D using a negative number. Find the difference between altitude of C and D.

Q36) Find the value of these:

(a) 6 + (-5) – (-8) (b) -20 - 15

Q37) Find the value of:

$$\sqrt[3]{-2 \times (6.5) - -2 \times (-3) + 8 \times (-2) - 8 \times 2 + 5^2}$$

Q38) Evaluate:

$$[(12 - 18) \div 3 - 5] \times (-4)$$

Q39) The sum of three consecutive even numbers is 60. Find the numbers.

Q40) The sum of one-fifth of a number and $3\frac{7}{10}$ is 7. Find the number.

Q41) Solve the following inequalities and show on number line.

(a) $18x < -25$ (b) $9y \geq 27$

Q42) When loaded with bricks, a lorry has a mass of 11 600Kg. If the mass of the bricks is three times that of the empty lorry, find the mass of the bricks.

4. Islamiat

1. Learn and write last 4 surahs of Holy Qur'an.
2. Write 5 Hadith with translation regarding the importance of prayer.
3. Make a chart of 5 obligatory prayers along with names and raka'ats.
4. What were the religious and social conditions of Arabs before the birth of Holy Prophet (SAW)?
5. Write the method of prayer.
6. What are the rights of parents according to the teachings of Islam?
7. Describe the Role of Hazrat Khadija (RA) in the life of Holy Prophet Muhammad (SAW).
8. During the pandemic of Covid-19, how are we required to live?
9. Share your experiences of generosity during the pandemic of Covid-19.

5. Pakistan Studies I

1. Describe three reasons for the War of Independence of 1857.
2. Who was Aurangzeb Alamgir?
3. Write two reasons for the failure of War of Independence of 1857.
4. Who was Nadir Shah?
5. Who was Bahadur Shah Zafar?
6. Who was Ahmad Shah Abdali?
7. Who were the Marathas?
8. Describe 3 reasons for the decline of Mughal Empire.
9. How can we know that historical facts are true?

Pakistan Studies II

1. Draw a map of Pakistan, identify the following:
   - Provinces
   - Neighbouring countries (write their full and correct names)
   - Cities:

     Islamabad, Murree, Rawalpindi, Gujranwala, Lahore, Faisalabad, Multan, Sialkot,

     Peshawar, Chitral, Gilgit, Hyderabad, Karachi, Quetta, Gwadar, Bahawalpur
   - Land forms:

     Balochistan Plateau, Sulaiman Range, Safed Koh, Potwar Plateau, Salt Range

     Hindu Kush, Karakoram, Himalayas. Tirich Mir, Nanga Parbat, K2
   - Rivers:

     Indus, Jehlum, Chenab, Ravi, Sutlej, Kabul, Hub, Dasht
   - Deserts:

     Thar, Thal, Kharan, Cholistan
   - Passes:

     Khunjrab Pass, Karakoram Pass and Khyber Pass, Shandur
   - Dams:

     Tarbela Dam, Mangla and Warsak Dam

2. On the outline map of Pakistan, mark the following:

   Tropic of Cancer, Latitude 30^0N and 36^0N, Longitude 64^0E, 70^0E and 76^0E, Arabian Sea
3. Explain the difference between absolute and relative location.
4. Explain several solutions to deforestation?
5. Explain the importance of water as a resource to Pakistan and its people.
6. Identify the main causes of water pollution in Pakistan.
7. What can be done to reduce water pollution in Pakistan?

6. Physics

Definitions:

1. The physical quantities which have only magnitude and no direction are called ***scalar quantities.***
   e.g. distance, speed, time, length, mass.
2. The physical quantities which have both magnitude and direction are called ***vector quantities.*** e.g. displacement, velocity, acceleration, force. Vectors can be represented graphically by arrows. The length of the arrow represents the magnitude. The arrow represents its direction.
3. Some common SI prefixes are listed in the table below:

Factor	Prefix	Symbol
10^{9}	giga-	G
10^{6}	mega-	M
10^{3}	kilo-	k
10^{-1}	deci-	d
10^{-2}	centi-	c
10^{-3}	milli-	m
10^{-6}	micro-	μ
10^{-9}	nano-	n

4. **Distance** is defined as the length of the path covered. **SI** unit is metre (m). It is a scalar quantity
5. **Displacemen**t is defined as the distance moved in the stated direction. **SI** unit is metre (m). It is a vector quantity
6. **Speed** is defined as the distance covered in unit time .Speed is also defined as rate of change of distance. **SI** unit is metre/second (m/s) .Speed can also be expressed in km/h. It is a scalar quantity
7. **Velocity** is defined as the distance covered in unit time in the stated direction .Velocity also defined as rate of change of displacement .**SI** unit is metre/second (m/s) .Velocity can also be expressed in km/h .It is a vector quantity.
8. **Acceleration is** defined as the change in velocity in unit time .It is also defined as the rate of change in velocity **SI** unit is metre/second squared (m/s^2) .It is a vector quantity.
9. Acceleration is **positive**, if the velocity increases and **negative** if the velocity decreases
10. Negative acceleration is known as **Retardation** or **Deceleration.**
11. A body is said to be moving with uniform acceleration, if its velocity changes equally in equal intervals of time.
12. A body is said to be moving with non-uniform acceleration, if its velocity changes are not equals to interval of time.
13. **Force** is a push or a pull. Force can change the size, shape and motion of a body. Unit of force is Newton (N). Force can be measured by using spring balance (Newton Meter). Examples: friction, weight, air resistance, electrostatic force, magnetic forces.
14. If the forces acts on a body are **balanced**, ***it stays at rest*** *or* ***it moves with constant speed.*** If the forces acts on the body are balanced, then the resultant force is zero.

15. **Unbalanced forces** causes ***a stationary body to move and a moving body to change its velocity ,*** if the forces act on a body are unbalanced, then there will be a resultant force.
16. **Newton's Second Law**: The acceleration of the body is directly proportional to the direction of force applied and inversely proportional to the mass of the body. The greater is the mass, smaller is the acceleration. The force, mass and acceleration can be combined into the following equation: ***Force = mass × acceleration F = ma***
17. **Newton Third Law**: To every action there is an equal but opposite reaction. i.e. if object A exerts a force on object B (action), then object B will exert an equal but opposite force on object A (reaction).
18. **Friction** is the force which opposes motion. i.e. stopping force .It always acts opposite to the direction of travel. Friction can be reduced by adding lubricants. **e.g.** lubricating oil, grease.
19. ***Circular Motion***: When any object is moving in a circular path, then the object is in ***circular motion.*** Objects are moving in circular path due to constant force acting towards center of the circle. This force is called ***centripetal force.***
20. **Mass** is a measure of substance in a body. SI unit of mass is Kilogram (kg) and other units are gram (g), milligram (mg) and tone. Mass can be measured by using beam balance and electronic balance. Mass of the body will remain same everywhere.
21. Mass of a body resists to change from its state of rest or motion, this is called **inertia**. A body resists to change its motion due to inertia. The greater the mass, the greater is the inertia. So, that is why the heavier objects are difficult to stop when it is in motion.
22. **Weight** of a body is an attractive force, that acts on an object due to gravity. SI unit of weight is Newton (N). Weight of an object can be measured by using spring balance (Newton Meter). Weight of a body varies in different places. It depends on gravitational field strength. $w = mg$
23. **Density** of a substance is defined as its mass per unit volume .Density of an object can be calculated by using formula: density =mass/volume. Units of density are kg/m3 and g/cm3.

Questions:

1. Which component differentiates a vector quantity from a scalar quantity? Is speed a scalar or a vector quantity?

2. Write the SI units of the following:

(a) speed (**b)** mass **(c)** length

3. A Second Pendulum takes two seconds to complete one swing. If, a Second Pendulum is kept in motion for two minutes, how many swings does the pendulum complete?

4. Identify the opposing force in each of the following situations:

(a) sawing the trunk of a tree,

(b) jumping on a bouncing castle,

(c) A skydiver falling from a helicopter and opening a parachute.

5. Explain how a space rocket is able to escape the strong gravitational field of the Earth.

6. Complete the table below with some commonly used SI prefixes

Multiple	Prefix	Symbol
10^3	Kilo	———
———	Mega	M
Sub-multiple	Prefix	Symbol

7: Prefixes are commonly used to express smaller or larger quantities. Express the following quantities in its basic units.

(a): 98 MHz = ----------Hz (b): 45 Km = ----------m(c): 24 Cm = ---------- m

(d): 2.8 mm = ---------- m (e): 325 μm = ---------- m

8: Convert the following to standard form (scientific notation):e.g. 24 km = 24 x 10^3 m

(a): 55 cm = ---------- m(b): 56 MJ= ---------- J (c): 9.8 mg = ---------- kg

9: With the aid of a diagram, describe briefly how would you measure the average diameter of a long wire using only a pencil and a ruler?

10: Estimate the thickness of each sheet of paper of your book (Physics: A.F.Abbott), by using only a meter rule. Explain briefly how did you get your answer?

11: Explain the following observations:

(i)the mass of a piece of rock measured by means of a beam balance is same on the Earth and on the Moon,

(ii) the weight of the same piece of rock measured by means of a spring balance is different on the Earth and on the Moon,

12: name the instruments that can be used to measure lengths.

13: A sports car traveling eastward at 30 m/sec suddenly comes to a halt in 5 sec. Find its acceleration in:

(a)m/sec^2 (b) km/sec^2

14: (a) Convert the following to ms^{-1}

(i)100 km h^{-1} =…… (ii) 0.36 km h^{-1} =……

(b): Convert the following to km h^{-1}

(i) 330 m sec^{-1} =…… (ii) 3 x 10^8 m sec^{-1} =-……

15: The SI unit of time is the second. Convert the following to second.

a) 2 h 43 min b) 1 day =

c) 1 week d)1 year

16. *Fig. 6.1 shows the horizontal forces as a cyclist travels forwards*

The cyclist produces the driving force that acts on the back wheel

In this question, you may ignore any frictional force acting on the front wheel.

(a) the bicycle accelerates until a constant speed is reached,

(i) describe how the size of the air resistance changes during this time,

(ii) compare the sizes of the two horizontal forces when the bicycle is accelerating.

Activities:

Design and carry out an activity to investigate the centre of mass of pieces of card of different shapes.

• Why do objects seem to balance about one particular point only?

• When is a body balanced or in equilibrium?

• How might the centre of mass of a body be determined?

Equipment needed: cardboard, string, pencil, scissors

Write the procedure as a list of steps.

Design and carry out an activity to investigate centripetal force in circular motion.

Think about the following:

• What is circular motion?

• What forces act on a body in circular motion?

• How do planets stay in orbit around the Sun?

Equipment needed: rubber bung with hole, long string (how long is a piece of strong?), slotted weights mass hanger (I'm sure you have this sitting around at home somewhere???), plastic tube, paper clip and metre rule.

Write a step-wise description of your procedure. (Do you know why scientists do this? Peer review.)

Investigating the effectiveness of several lubricants in reducing friction

Friction is a resisting force that is created when two surfaces rub against one another. Friction generates heat and can be both useful and damaging. One way of overcoming friction is by using lubricants. A lubricant provides a smooth surface that prevents the molecules of the two surfaces from rubbing against one another.

Design and carry out an activity to test the effectiveness of several lubricants in reducing friction.

Think about:

- Explain why your hands feel warm when they are rubbed against one another.
- List 5 advantages of friction. List 5 disadvantages.
- Describe 5 materials that can be used as lubricants

Equipment needed: carom board with discs, boric acid powder, talcum powder

Write a step-wise description of your procedure.

Projects:

Start making any of these projects (for the next Science Exhibition):

1. Make model of a vernier caliper.
2. Make a working model of a water dispenser.
3. Make a working model of a smoke absorber.
4. Make working model of a wind turbine.
5. A solar water heater that can boil water so that any bacteria in it are killed and it can be drunk safely. (Did you know more children die in the world from water-borne bacterial infections than from any other cause?)
6. Investigate how to you use lemons to make a small torch bulb glow? (I wonder if you connect lemons in series (or would it be in parallel?), would the lamp glow brighter?) How could you measure the current, voltage etc., and how many lemons would it take to recharge a phone?

7. Chemistry

In science, we use apparatus for conducting experiments. List ALL of te names of apparatus that have ben used during lessons.

Activity 1.

Measuring cylinder (of a 250cm^3 & 1000cm^3)

Pipette	Burette
Volumetric Flask	Plastic Syringe/Gas Syringe
Beaker (of 500 cm^3)	Balance (top-load and beam balance)

Identify the apparatus used to measure:

(a) accurate volume to the nearest 0.1cm^3

(b) fixed volumes (25cm^3 , 50cm^3 , 10cm^3) very accurately

(c) small volumes of liquid

(d) fixed volumes (100 cm^3, 250 cm^3, 1 dm^3) when making up solutions of exact concentration

(e) approximate volume

2. Use the Periodic Table to see that the elements are arranged in order of increasing atomic number/proton number. There are more than 100 elements in the Periodic Table.

i. how many are represented by single letter i.e. carbon with C?

ii. how many are represented by two letters i.e. calcium Ca?

iii. how many are represented by three letters?

iv. how many are represented with odd numbers i.e. $_{9}F^{19,}$,

v. how many have atomic mass more than 100 i.e.: $_{53}I^{127}$ and $_{82}Pb^{207}$?

vi. why are the elements displayed/categorized in a table?

vii. how can you be certain that the information in the Periodic Table is accurate?

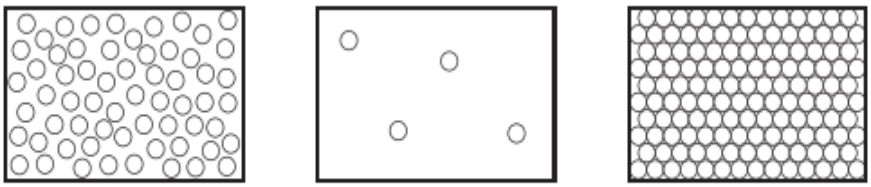
4. Investigate the changes between different states of matter.

We can plot a heating or cooling curve. Here temperature and time are recorded at regular intervals on a graph.

Draw and label cooling curve for ice (110 ^{0} c to -10 ^{0} c) you can take help from book, and remember temperature remains same till a pure solid melts and pure liquid boils completely.

4 Diffusion takes place in gases and liquids, where in daily life you observe diffusion of gases and liquids.

Examples in liquid and gases are:



- The diagram shows the arrangement of particles in various states of matter.
- Kinetic theory explains the movement of particles in solids, liquids, and gases. It also explains the effect of heat on these three states.
- Keeping in view the ice, water and steam, with the help of kinetic theory, write arrangement of particles in solid, liquid and gas states:
    I. The particles in a solid are…
    II. The particles in a liquid are…
    III. The particles in a gas are…

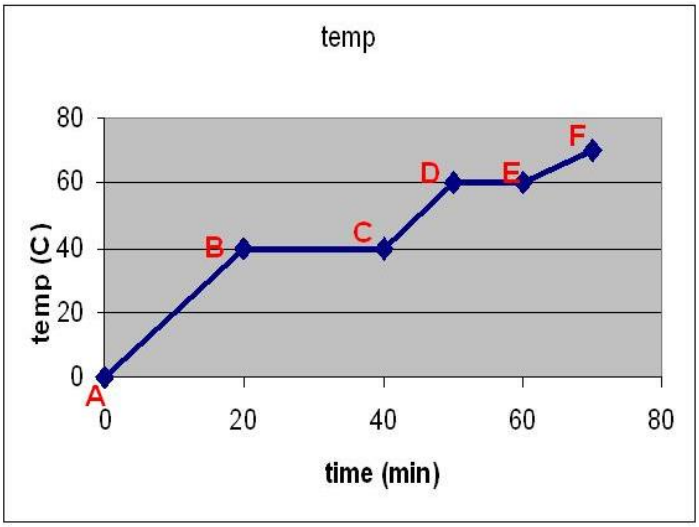
5. Explain (in your own words, ie not from a textbook) what the following terms mean:

matter, solid, liquid, gas mass, melting point, boiling point, kinetic theory, proton number, nucleon number, isotopes, relative atomic mass, valence, electrons.

6. Why does water not burn? (It's made up of Hydrogen and Oxygen are both of which are flammable.) And what is the opposite of 'flammable'?

7. Use the heating curve for wax below to answer the questions:

    a. What is the melting point of this wax?



b. What does the word 'melt' means (using Chemistry language)?

c. How long, according to the graph, before all the wax has melted?

d. List 3 ways to speed up the melting process.

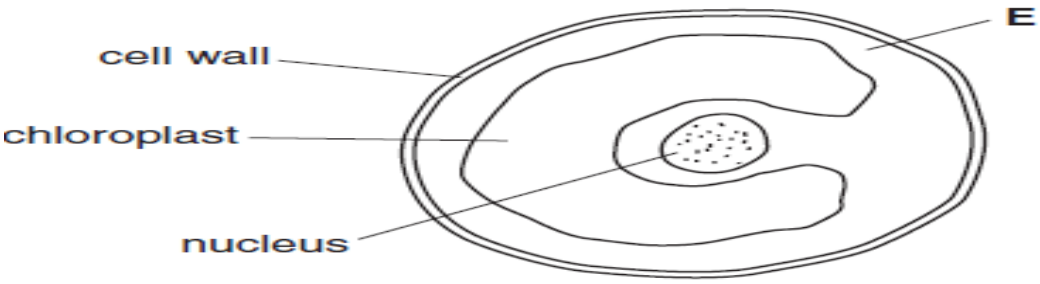
e. What is the boiling point of this wax?

f. Why do we say wax vapour and not gaseous wax?

8. Why does water take longer to boil at the top of Tirich Mir than at the bottom?

8. Biology

1. Describe, with diagrams, the differences between a plant cell and an animal cell.
2. The diagram below shows a microscopic section of a one-celled organism often found growing on the bark of trees.



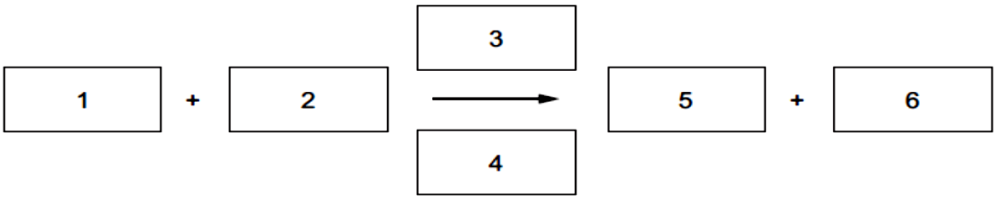
3. i. Suggest the identity of the region labeled E.
   ii. List the structures visible in the diagram which suggest that this organism might be a plant.
   iii. List the ways in which this cell differs from a palisade cell in a plant leaf.

4. The results of food tests are shown in the table below.
   i. Complete the table to show the conclusions.

	observations		conclusions
	fat test	starch test	
F1	solution stayed clear	food went black	....
F2	solution went cloudy	food went yellow	....

   ii. Describe how would you carry out the tests for fat and starch?

5. The equation for photosynthesis is represented below:



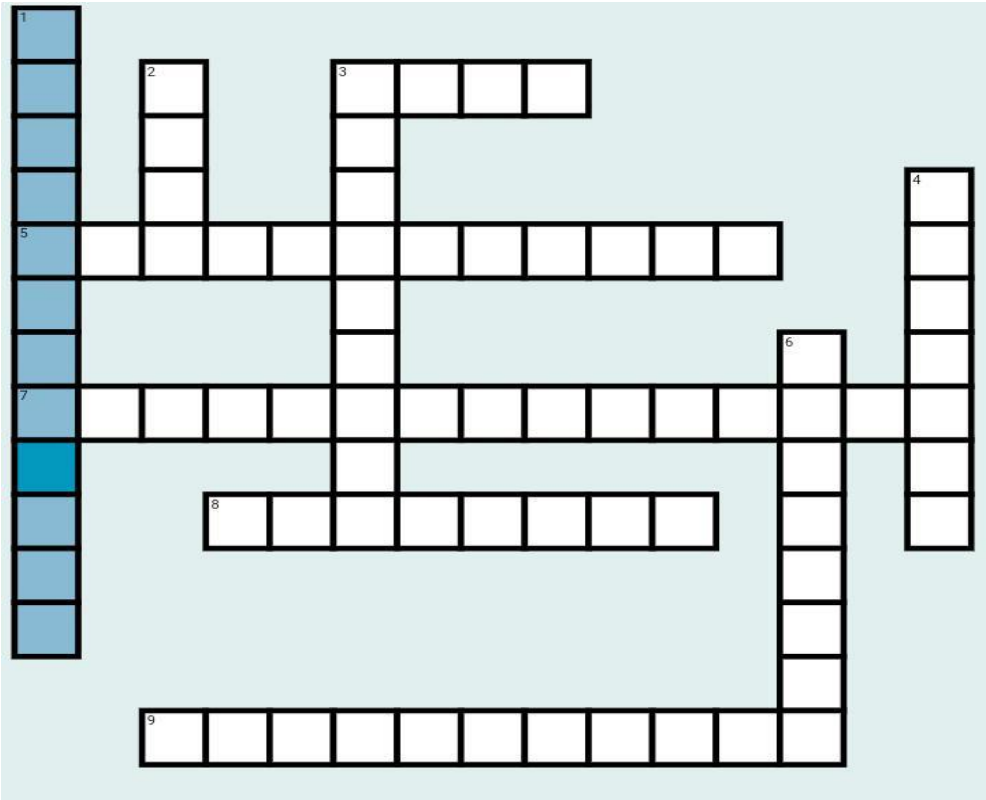
   Label the boxes.

	1	2	3	4	5	6
A	oxygen	carbon dioxide	sunlight	chlorophyll	glucose	water
B	glucose	carbon dioxide	chlorophyll	sunlight	water	oxygen
C	carbon dioxide	water	sunlight	chlorophyll	glucose	oxygen
D	water	oxygen	chlorophyll	sunlight	glucose	carbon dioxide

6. What are the effects of a lack of magnesium ions and nitrate ions on a plant growth?

	lack of magnesium ions	lack of nitrate ions
A	leaves go yellow between the veins	unable to form enzymes
B	roots lack root hairs	overall growth stunted
C	unable to form amino acids	unable to form glucose
D	unable to form cellulose	oldest leaves go yellow

7 Animal Cell



Across:

3.basic unit of life

5. contain chlorophyll, capture the energy from sunlight and use it to produce food for cell

7. surround and protect the nucleus

8.control the movement

9. direct cell activities and exist in the nucleus.

Down:

1.produce and supply energy for the cell

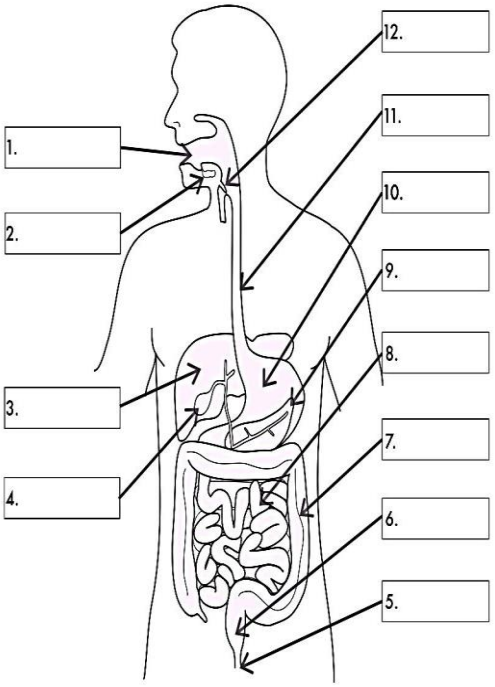
2.surrounded the cell and protect it

3. a watery, gel like material

4. act as brain of cell

6. store food water and chemicals

Activity 5



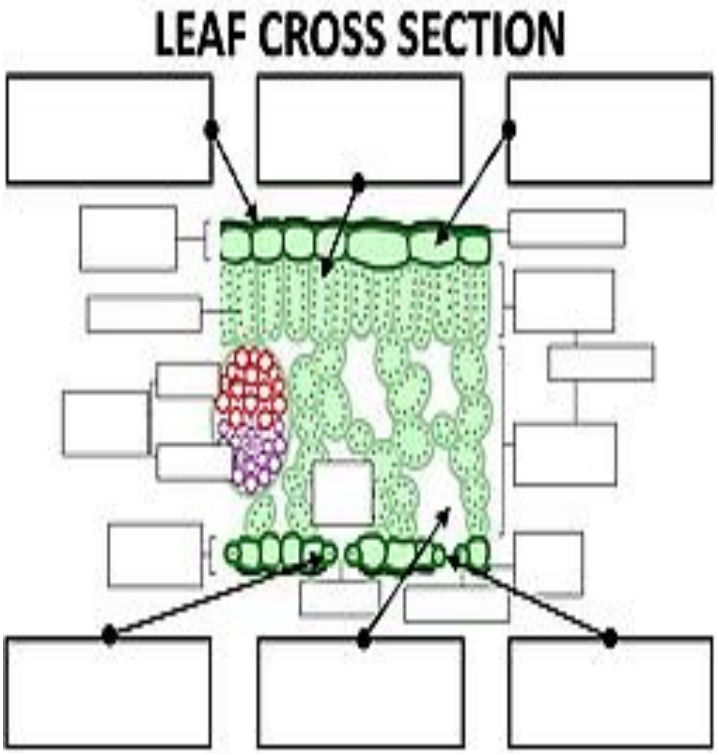
1.) Label the diagram of the digestive system with the structures given in the table to the right.

2.) In the table, give the function of each of the structures you have labelled on the diagram of the digestive system.

Structure	Function in Digestion
mouth	
epiglottis	
oesophagus	
stomach	
small intestine	
large intestine	
appendix	
rectum	
anus	
liver	
gall bladder	
pancreas	

Activity 6

Label the diagram.



9. Business Studies

Definitions

i) Business: Any activity that is carried out by an individual or an organization concerning provision of goods and services with a view to making profit.

ii) Business Studies: Is the study/examination of the business activities in society. These activities are related to the production of goods and provision of services. It can also be defined as the study of activities that are carried out in and around production, distribution, and consumption of goods and services.

iii) Goods: These are items that are tangible .i.e. they can be touched and felt.

iv) Services: These are efforts or acts/actions or activities that may be sold and are intangible (cannot be touched nor felt).

Activity 1: Make a list of items in the classroom that can be touched and felt e.g. furniture, buildings, books, vehicles etc.

Activity 2: Make a list of items, for them money is paid to get but they cannot be touched.

v) Production: It refers to the creation of goods and services or increasing their usefulness/value through activities such as transporting them to where they are required. People, who are involved in production of goods and services, are referred to as producers.

Activity 3: Use the lists designed of goods and services in Activity 1 and 2, name those who are involved in their production.

vi) Distribution: It refers to the movement of goods and services from producers to the users.

vii) Consumption: It refers an act of using the goods or services produced. Consumption is the ultimate goal of production. The persons, who use a good or a service, are referred as consumers.

Activity 4: Make a list of the consumers of the goods and services listed in activity (1) and (2) above.

Resources:

There are three types of resources.

Human resources are people who use their skills to produce a good or service. e.g. a teacher

Natural resource is in nature and it is used in its natural form. e.g. trees

Capital resources are goods which are produced and used to make other goods and services. e.g. buildings, computers.

Activity 5

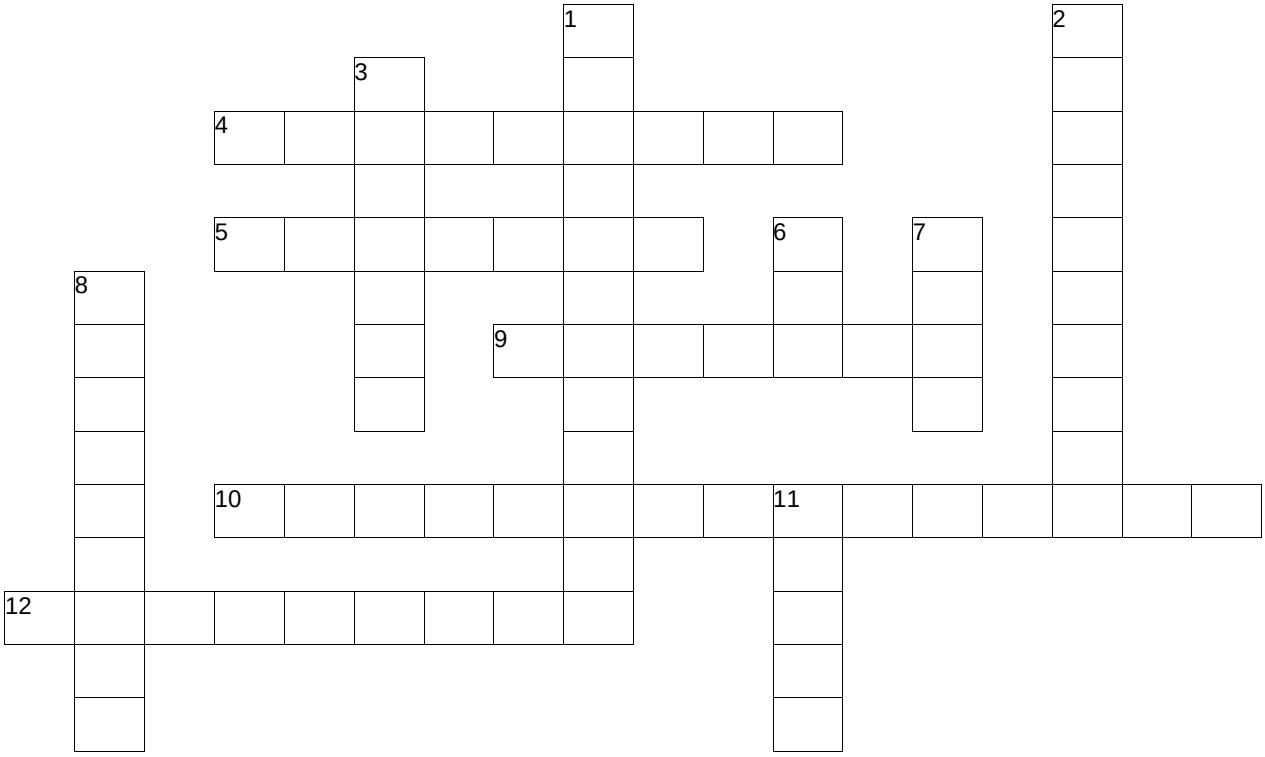
Cut and paste the images from any newspaper of different above-mentioned resources.

10. Accounting

Activity 1

Accounting Basics

Please complete this crossword puzzle by using the clues below:



Across

4. When you owe money

5. This affects owners' equity

9. When expenses are greater than revenue you have a

10. Revenue, expenses and net income/loss are shown on

12. The fourth step in the accounting cycle is

Down

1. Assets, Liabilities, and Owners Equity appear on this form

2. When a customer owes you money

3. When you owe money

6. In accounting at least _____ accounts are affected in a transaction

7. _____ is an asset

8. Sales minus expenses

11. Anything you own

Activity 2

Prepare the T-accounts, balance off all the accounts and then prepare a trial balance as at 31st January, 2008

a

2008		
Jan	1	Started in business with Rs.15,000 in the bank.
	2	Purchase goods Rs.500 and make payment through cheque.
	5	Sold goods for cash Rs.20,000.
	15	Purchase goods for cash Rs.5,000.
	25	Cash sales Rs.1,300.
	26	Deposit cash Rs.1,000 into bank.
	31	Paid salaries Rs.1,200.

b

2008		
Jan	1	Started in business with cash Rs.15,000.
	2	Purchase land for cash Rs.5,000
	5	Bought furniture on cash Rs.2,000
	15	Purchase goods for cash Rs.5,000.
	25	Cash sales Rs.1,300.
	26	Paid wages Rs.200.
	31	Paid salaries Rs.1,200.
	31	Owner withdraws cash Rs.200 from business, for personal use.

c

2008		
Jan	1	Started in business with Rs.10,500 cash.
	2	Put Rs.9,000 of the cash into a bank account.
	5	Bought goods for cash Rs.550.
	15	Bought goods on credit from T Dry Rs.800
	25	Bought stationery on credit from Buttons Ltd Rs.89.
	26	Sold goods on credit to: R Tong Rs.170
	31	Paid rent by cheque Rs.220.

Activity 3

a. Complete the gaps in following table:

	Assets	Liabilities	Capital
	Rs.	Rs.	Rs.
a)	12,500	1,800	?
b)	28,000	4,900	?
c)	16,800	?	12,500
d)	19,600	?	16,450
e)	?	6,300	19,200

b. Define the following:

   a. Assets
   b. Liabilities
   c. Capital
   d. Expenses
   e. Incomes
   f. Stakeholders
   g. Returns inwards
   h. Returns outwards
   i. Drawings
   j. Trial balance

Activity 4

J. Hill has the following assets and liabilities as on 30th November, 20X9: Creditors Rs.2,800; Equipment Rs.6,200; Car Rs.7,300; Stock of goods Rs.8,100; Debtors Rs.4,050; Cash at bank Rs.9,100; Cash in hand Rs.195.

You are not given the capital amount at that date.

During the first week of December 20X9

(a) Hill bought extra equipment on credit for Rs.110.

(b) Hill bought extra stock by cheque Rs.380.

(c) Hill paid creditors by cheque Rs.1,150.

(d) Debtors paid Hill Rs.640 by cheque and Rs.90 by cash.

(e) Hill put in an extra Rs.1,500 into the business, Rs.1,300 by cheque and Rs.200 in cash.

Required: You are to draw up a statement of financial position as at 7th December, 20X9 after the above transactions have been completed.

Activity 5

2008 Jan 1	Started in business with Rs.10,500 cash.
2	Put Rs.9,000 of the cash into a bank account.
5	Bought goods for cash Rs.550.
15	Bought goods on credit from T Dry Rs.800
16	Bought stationery on cash Rs.89.
17	Sold goods on credit to R Tong Rs.170
19	Paid rent by cheque Rs.220.
20	Bought fixtures for cash Rs.610
21	Purchase goods for cash Rs.100
22	Sold goods for cash Rs.80
24	Purchase goods on credit from T Dry Rs.200
25	Sold goods to R tong Rs.220
25	Received Rs.200 cash from A Tom.
26	Return goods to T Dry Rs.500.
27	R Tong return us goods Rs.30.
30	Paid salaries Rs.100.
31	Owner withdraws goods Rs.150 for personal use.
31	Owner invested additional cash Rs.2500.

Required:

i. Prepare the T-accounts and the trial balance.

ii. Prepare the income statement and statement of financial position.

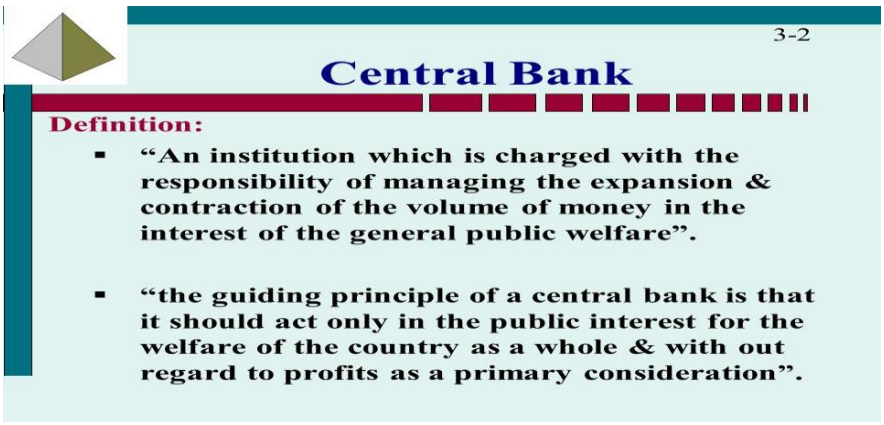
11. Economics

Assignment 1

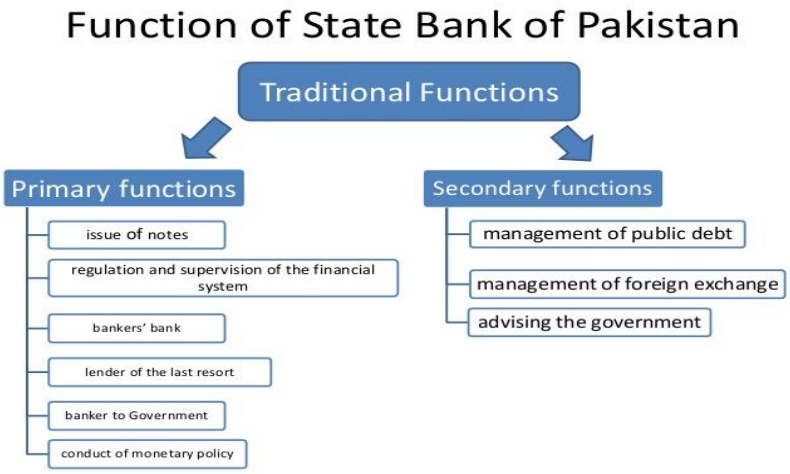
1. In your own words write one-paragraph explanation of:

Type		Example
Free good		Rain water
Normal good	A good with a demand directly related to income.	
Inferior good	A good with a demand indirectly related to income.	
Capital good	A good use to manufacture other goods or services.	
Final good		Car
Intermediate good	An input contained in the final product.	
Durable good	A good with a useful life exceeding three years.	
Nondurable good		Battery
Perishable good	A nondurable good that has a very short useful life.	Egg

2. Write an explanation that clarifies the difference between goods and services – what are they and how are they different? Give examples to support your explanations.
3. Write an explanation that clarifies the difference between the factors of productions and the factor returns – what are they and how are they different? Give examples to support your explanations.
4. Describe the production process of cars or mangos (or both) and clarify the factors of production and the factor rewards in each production process.
5. Explain what a central bank is and what is its role in an economy?



6. Write an essay that describes the functions of State Bank of Pakistan, with a separate paragraph for each different function. Where is the State bank of Pakistan?



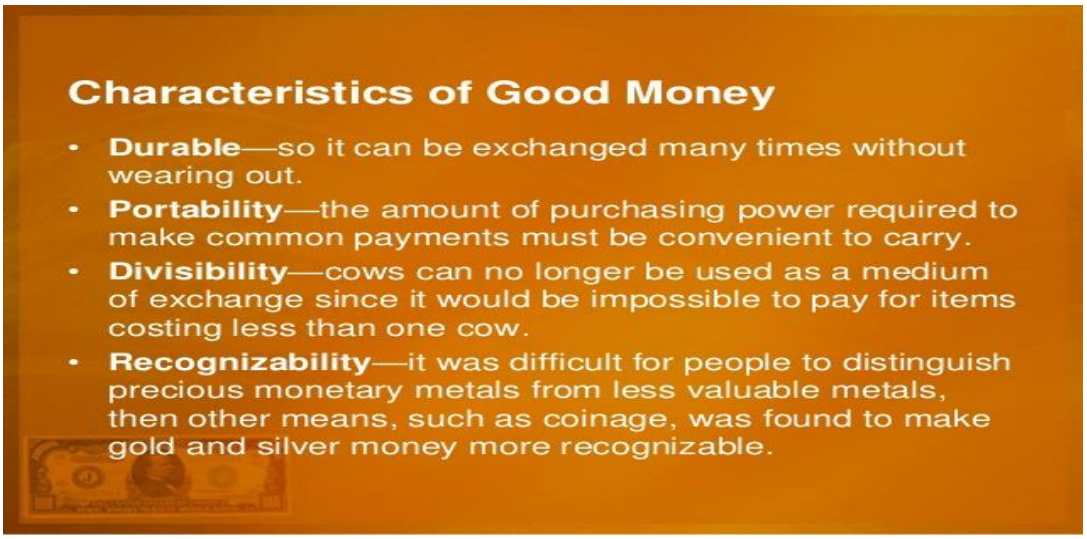
7. What are the basic functions of commercial banks of Pakistan? Write in form of paragraphs.

The 4 Functions of Money:

1. Medium of exchange
2. Standard of value
3. Store of value
4. Standard of future payment

8. Explain the concept of money – what can money be used for?

9. What are the characteristics of good money? Write an essay with a separate paragraph for each characteristic.



10. Explain the concert of opportunity cost. Use time to support your explanation, for example, what is the opportunity cost of spending 2-3 hours at an afternoon/evening academy, vis-à-vis learning cricket skills?

12. Computer Science

Activity no. 1: Draw a line to conncet each question to the correct answer.

Question	Answer
What is the denary (base 10) equivalent to the hexadecimal digit **E**?	8
If 1 GB = 2^x then what is the value of X?	12
How many bits are there in one byte?	14
If the broadband data download rate is 40 megabits per second, how many seconds will it take to download a 60 MB file?	19
What is the denary (base 10) value of the binary number 0 0 1 0 0 1 0 0 ?	30
What hexadecimal value is obtained when the two hexadecimal digits **C** and **D** are added together?	36

Activity no. 2: Complete the following by writing compiler, *interpreter* or *assembler* in the following spaces provided.

..... – translates source code into object code.

..... – translates low-level language into machine code.

..... – stops the execution of a program as soon as it encounters an error.

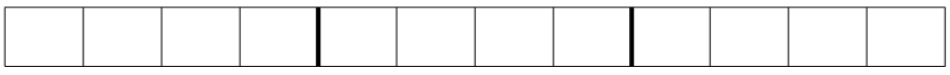
Activity no. 3:

(a) The denary value 2 6 4 0.Convert this value to hexadecimal.

(b) The Denary value of A 5 0 1. Convert this value to hexadecimal.

(c) Convert the following hexadecimal number 12-bit binary.

4 A F



Activity no. 4:

Letters from the alphabet are represented in a computer by the following denary (base 10) values.

A = 97
G = 103
I = 105
L = 108
N = 110

The word "**A L I G N**" is stored as: 97 108 105 103 110

(a) Convert each of the five values to binary. The first one has been done for you.

Letter	Denary value							
A (97):	0	1	1	0	0	0	0	1
L (108):								
I (105):								
G (103):								
N (110):								

(b) An encryption system works by shifting the binary value for a letter one place to the left. "A" then becomes:

1	1	0	0	0	0	1	0

This binary value is then converted to hexadecimal; the hexadecimal value for "A" will be:

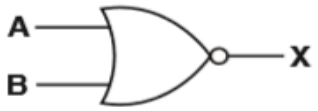
C 2

For the two letters "L" and "G", shift the binary values one place to the left and convert these values into hexadecimal:

									hexadecimal
L:									.....
G:									.....

Activity no. 5:

Complete the truth table for the NOR gate.



A	B	Output (X)
0	0	
0	1	
1	0	
1	1	

Activity no. 6:
(a) The denary number 57 is to be stored in two different computer registers. Convert 57 from denary to binary and show your working.

(b) Each image taken requires 1 MB of storage. If the camera captures an image every 5 seconds over a 24 hour period, how much storage is required? Give your answer in gigabytes and show all of your working.

Activity no.7
A robot arm in a factory is programmed to move protocols.

The binary instructions to operate the robot arm are:

Operation	Binary Instruction
UP	1 1 1 1
DOWN	0 0 0 1
LEFT	1 0 0 1
RIGHT	0 1 1 0
OPEN	1 1 0 0
CLOSE	0 0 1 1

The instructions are entered as hexadecimal values.

An operator enters the values:

9 1 C 3 F

Convert the values and write down the operation (e.g. RIGHT) carried out by the robot arm.

9 .....

1 .....

C .....

3 .....

F .....

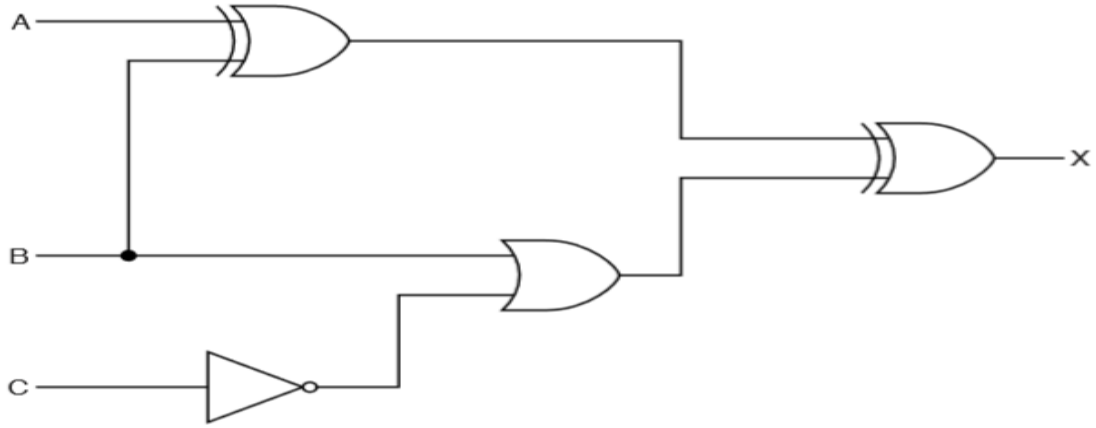
Activity no. 8:
Parity checks are often used to check for errors that may occur during data transmission.

(a) A system uses **even parity**.

Tick (✓) to show whether the following three bytes have been transmitted correctly or incorrectly.

Received byte	Byte transmitted correctly	Byte transmitted incorrectly
1 1 0 0 1 0 0 0		
0 1 1 1 1 1 0 0		
0 1 1 0 1 0 0 1		

Activity no. 9:
(a) Complete the following truth table.



A	B	C	Workspace	X
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

Activity no. 10:
A gas fire has a safety circuit made up of logic gates. It generates an alarm (X= 1) in response to certain conditions.

Input	Description	Binary value	Conditions
G	gas pressure	1	gas pressure is correct
		0	gas pressure is too high
C	carbon monoxide level	1	carbon monoxide level is correct
		0	carbon monoxide level is too high
L	gas leak detection	1	no gas leak is detected
		0	gas leak is detected

The output X = 1 is generated under the following conditions:

gas pressure is correct **AND** carbon monoxide level is too high

OR

carbon monoxide level is correct **AND** gas leak is detected

(a) Draw a logic circuit for this safety system.

(b) Complete the truth table for the safety system.

G	C	L	Workspace	X
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

Activity no. 11:

Four input devices, four descriptions and four applications are shown below

Draw a line to connect each input device to its correct description. Then connect each description to its correct application.

Input device	Description	Application
barcode reader	copies paper documents and converts the text and pictures into a computer-readable form	voice recognition
microphone	reads labels containing parallel dark and light lines using laser light or LEDs; the width of each line represents a binary code	reading passports
pH sensor	detects changes in acidity levels; data is often in analogue form	automatic stock control
scanner	device that allows audio signals to be converted into electric signals; these can be interpreted by a computer after being converted into digital form	monitor soil in a greenhouse

In the following barcode, each binary number is made up of seven bars.

Each bar is black or grey.

A black bar is interpreted as a "1" and a grey bar is interpreted as a "0".

(a) Write the binary numbers that would be produced from this barcode:

Binary number A **Binary number B**

Binary number A:

Binary number B:

(b) This barcode system uses odd parity.

Write the parity bit for each of the binary numbers in **part (a)**:

	Parity bit
Binary number A:	
Binary number B:	

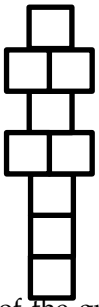
Activity no. 12:

Statement	**true** (✓)	**false** (✓)
Assembly language uses mnemonic codes.		
Assembly language programs do not need a translator to be executed.		
Assembly language is a low-level programming language.		
Assembly language is specific to the computer hardware.		
Assembly language is machine code.		
Assembly language is often used to create drivers for hardware.		

13. Sports

Sadiq Public School's curriculum is more than just academic subjects. This is one of the main ways that Sadiq Public School is so unique. We aim for all students to learn the value of team sports sportsmanship and good health through regular physical activity. You can learn some of these even while at home.

1. Choose 2-3 physical exercises and practice doing these every day. It may be press ups, step ups (walking up and down 3-4 stairs repeatedly), star-jumps, squats… You should do 2-3 of these every day for about 30 minutes every day. Early in the morning is probably better. You are aiming to make it a daily habit that you will still be doing when you're 50 years old. You can challenge yourself to do more each day or more in the 30 minute session. You can challenge your parents (but remember that they're very old and so be gentle with them).
2. Think of a skill-based physical activity that involves some coordination, such as jugging three balls or skipping rope. Now teach yourself how to do this. And when you're proficient, teach someone else. Why? Doing these things occupies your brain and that means you're not thinking about other things – so these activities become a good way to relax, distract your brain from things that are causing you stress (like exams!)
3. Ball games are good for reducing stress, and sneakily using up energy and so keeping you for and healthy and helping you to sleep properly. If you have brothers and sisters at home you can ball games like mini-cricket, catching & throwing, bouncing a ball against a wall and catching it (who knows you may be selected as wicket-keeper for the 1st XI).
4. Hop-scotch. You might have to ask your parents how to play this. With chalk, draw a grid of 9 squares on a paved area…



Stand at the bottom of the grid. Each square has a number 1-9 in it (I can't draw the number with my computer, but you can with chalk.) Use a small stone and slide it first to the 1st square. Hopping, jump over the square with the stone in it, continue hopping up the grid in the correct order, torn around, hop back to the 2 square, bend down and pick up the stone (you're not to put your other foot on the ground otherwise it's too easy), and then back to the start. If you succeed, now slide the stone to the 2 square and hop away, and back, bend down pick up the stone, hop to the start… etc. If you miss the square with you stone, or you put your non-hopping foot down your turn has ended and the next player starts. Yes, parents can play too, but not your neighbours or your cousins who live in Lahore because they're staying home and staying safe. If you don't like my rules, make your own. But once you make the rules, no cheating.

14. Critical Thinking

Thinking critically means to question new information before accepting it as true. If you are told something new or read something new, here are some questions that you can ask before accepting the new information as true…

What: -is the source of the information and is it a reputable and reliable source?
- are some alternative explanations/perspectives?

Who: -benefits (or could benefit) from this information?
-else have you heard discuss this?
-is this harmful to?
-would be best to ask for more information about this topic?
-is the person generating this information and what is their expertise in the matter?

Where: -could we search for supporting information or information to refute the information?
-are similar concepts/information available?
-has this information come from to you?

When: -was this information created?
-was the information received (compared to when it was created)?

Why: -is the information relevant to you/others?
-has the information been created and communicated?
-are people influenced by this information?
-is this information needed now?

How: -is this information similar to other information?
-can this information be used?

Read the following 3 news article and apply some critical thinking questions to answer the basic question: should I believe this new information? Which articles do you think are true, not true, not sure and would want more information before deciding? Does the source (where you receive information from) matter in your critical thinking?

Article 1:

The first Arab space mission to Mars has blasted off aboard a rocket from Japan, with its unmanned probe – called Al-Amal, or Hope – successfully separating about an hour after liftoff.

A live feed of the launch showed the rocket carrying the probe lifting off from the Tanegashima Space Centre in southern Japan at 6.58am (9.58pm GMT).

Almost exactly one hour later, the feed showed people applauding in the Japanese control room as the probe successfully detached.

In Dubai, the launch was met with rapturous excitement, with the UAE Mars mission's deputy project manager Sarah al-Amiri declaring it "an indescribable feeling" to see the probe blasting off.

"This is the future of the UAE," Amiri, who is also minister of state for advanced sciences, told Dubai TV from the launch site.

The Emirati project is one of three racing to Mars, including Tianwen-1 from China and Mars 2020 from the United States, taking advantage of a period when the Earth and Mars are nearest.

In October, Mars will be a comparatively short 38.6m miles (62m km) from Earth, according to Nasa.

Hope is expected to reach Mars's orbit by February 2021, marking the 50th anniversary of the unification of the UAE, an alliance of seven emirates.

Unlike the two other Mars ventures scheduled for this year, it will not land on the planet, but instead orbit it for a whole Martian year, or 687 days.

While the objective of the Mars mission is to provide a comprehensive image of the weather dynamics in the red planet's atmosphere, the probe is a foundation for a much bigger goal – building a human settlement on Mars within the next 100 years.

The UAE also wants the project to serve as a source of inspiration for Arab youth, in a region too often wracked by sectarian conflicts and economic crises.

On Twitter, the UAE's government declared the probe launch a "message of pride, hope and peace to the Arab region, in which we renew the golden age of Arab and Islamic discoveries."

Source: The Guardian (July 20, 2020), https://www.theguardian.com/science/2020/jul/20/uae-mission-mars-al-amal-hope-space

Article 2:

A couple living on the South Island's Otago Peninsula in New Zealand are not giving up hope of finding their beloved dogs – despite having spent $20,000 (£10,400) and nine months scouring the country for them, to no avail.

Nine-year-old black poodle Dice and three-year-old fox terrier Weed went missing from Alan Funnell and Louisa Andrew's home in October last year.

Since then, Funnell has spent one weekend a month traversing the South Island searching for them.

He and Andrew say they have put up about 400 signs and spent at least NZ$20,000 in their mission.

"Our dogs to us are like our family, we just know they are out there somewhere," Funnell said. "New Zealand is really not that big a place."

The saga started when Andrew went to feed the couple's chickens and let the dogs out of the car. They ran off, perhaps chasing a rabbit, and did not return.

"We called and called, and they didn't come," said Funnell. "We love our animals. They are great wee dogs. We are not going to give up until we find them."

Members of the public have helped with putting up signs which are now spread throughout country – from the tip of the North Island to the bottom of the South Island.

The couple have raised more than $10,000 to help with the search from almost 300 donors. "We got a huge amount of support throughout New Zealand and we are lucky to have that," Funnell said.

Funnell thinks the dogs were picked up by tourists after a sighting came through of two dogs being tied to a campervan in the area.

"We have been through a rollercoaster of emotions in the process of it all. We are sure they are alive. We have come to being positive about things," said Funnell.

"We can feel them out there."

Source: The Guardian (July 20, 2020), https://www.theguardian.com/world/2020/jul/20/new-zealand-is-not-that-big-a-place-the-nine-month-20000-search-for-two-lost-dogs

Article 3:

American Airlines To Phase Out Complimentary Cabin Pressurization

FT. WORTH, TX—Explaining that the costs of the service have grown too high in recent years, American Airlines announced Tuesday that it will no longer offer free cabin pressurization to passengers starting March 15. "Unfortunately, to stay competitive as a legacy carrier in today's air travel market, it no longer makes economic sense for us to provide breathable air at altitude," said American Airlines CEO Doug Parker, noting that despite the cutbacks, air pressurization would still be available to first- and business-class travelers as well as those willing to pay an additional fee. "While we regret any altitude sickness, blood problems, dimmed vision, or hyperventilation that

may result from air pressure less than a third normal levels, we remind our customers that such effects will diminish as soon as the aircraft descends below 10,000 feet." Parker added that the company is also planning to discontinue complimentary landing gear on flights under four hours.

The Onion (25 February, 2014)
https://www.theonion.com/american-airlines-to-phase-out-complimentary-cabin-pres-1819576190

Article 4:

Nutritionists Admit You Can Just Eat Hotdogs And Live Like That For Basically Decades

DENVER—Conceding that people can, in fact, survive indefinitely on a daily diet consisting solely of hotdogs, top nutritionists admitted Wednesday that you could just eat hotdogs and live for basically decades. "We put a lot of work into formulating dietary guidelines based on discoveries and advancements in the field of food science, but honestly, if you just ate hotdogs three times a day every day, you'd be okay," said nutritionist Alison Lawler, noting begrudgingly that a supermarket hotdog contains sufficient proteins, carbohydrates, and minerals to sustain an average human well into their 80s. "You won't be healthy per se, but you'd last on hot dogs for years and years. You wouldn't feel great, you'd be a bit weak and tired, but that's about it. And you'd most likely be reasonably happy, because hot dogs are tasty and satisfying. Now, by no means are we recommending that you stock your pantry full of hot dogs, but we have to admit, that wouldn't be the end of the world." At press time, the nutritionists were not available for further comment as they had all gone out for hotdogs.

The Onion (20 July, 2020).
https://www.theonion.com/nutritionists-admit-you-can-just-eat-hot-dogs-and-live-1844383727

15. Community service

Community service simply means serving our community – doing something to help the community. In the current situation we can all serve our community by staying at home / staying away from other people and washing our hands frequently with soap because when we do this we stop the virus being passed from one person to another. If we all do this, our whole community will be helped.

You can help the whole world's community by doing what you can to reduce plastic waste. You can do this by refusing plastic bags at shops. Make your own paper bags at home and take these to the shops and so not use plastic bags. Buy less (or even none) products that have plastic packaging. Glass can be recycled and so that's fine.

Bury biodegradable waste in your garden rather than send it by rubbish truck to a dump somewhere. Fruit, vegetable scraps, leftover food etc. will rot in your garden and so quickly convert back into soil and return nutrients to plants. Paper waste will do the same.

Turn off lights and other electricity-users when not needed and do not let water taps run needlessly.

Look for ways to help others. Practise saying, 'can I help you?' with family members and then helping will become part of who you are.

There is an interesting theory that the virus that has caused this current situation was passed to humans because animal habitats, especially forests, are being destroyed. Destroying forests, whether for the timber, for clearing land to use for agriculture, or simply to burn the wood as fuel, is called deforestation and it is the main cause of climate change. The next few pages will help you learn more about deforestation and its very bad effects on the planet and human life.

Lesson 2. Deforestation

Deforestation is the removal of forest from land which is then converted to agricultural or urban use. Most deforestation occurs in tropical rainforests such as the Amazon Rainforest.

Between 2000 and 2012, about 890,000 square miles of forests around the world were cut down. Only about 2.4 million square miles of the Earth's original 6 million square miles of forest remains. An area about size of a football field is cleared from the Amazon rainforest every minute for agriculture.

Deforestation is a significant contributor to global warming because it is responsible for about 20% of all greenhouse gas emissions.

According to the UN's Food and Agriculture Organization, almost 80% of all deforestation is driven by agriculture. The UN Framework Convention on Climate Change says the primary cause of deforestation is agriculture.

Subsistence farming is responsible for almost half of all deforestation (48%), with commercial agriculture (32%; logging (14%), and fuel wood (5%) the other causes.

The EU is a major importer of agricultural products, such as palm oil, soy, and cocoa, products commonly associated with agricultural land that was recently forested land. EU countries are keen to reduce the impact of their commercial activities on forests and deforestation. France's government, for example, announced it will 'encourage every actor (producers, businesses, investors, and consumers), to change their practices in order to reduce deforestation.' The French government passed a law stating that palm oil is not considered a biofuel.

In 2008, the EU agreed to stop global forest cover loss by 2030. The UN declared a Sustainable Development Goal of ending deforestation by 2030.

Which countries are worst affected by deforestation?

South & Central America
Large areas of Brazil's share of the Amazon rainforest is being destroyed by illegal logging, exacerbated by government corruption. Deforestation in Peru's share of the Amazon rainforest is due to illegal logging and clearing forests for use as agricultural land. Bolivia's large soya industry and cattle-ranching are the country's main causes of deforestation and the Bolivian government is unlikely to risk the country's food security. Mexico's avocado industry is responsible for the loss of tropical and pine forests.

Asia Pacific
Indonesia's palm oil industry has driven destruction of its rainforest and also its wetlands, with more than 5000 square miles cut down annually to supply palm oil. More than 2000 square miles of Russia's vast forests are lost to wildfires annually. Logging and the palm oil industry account for about 1000 square miles of trees lost in Papua New Guinea annually.

Africa
In Sudan, about 500 square miles of trees are cut down every year to be used as household cooking fuel and heating, and for commercial production of steam-generated electricity. Just 6% of Nigeria's original forests remain because of trees being cut for household cooking fuel and heating.

While these countries are where deforestation is occurring the most, all countries are affected by deforestation because it is a significant factor in global warming and therefore climate change.

Activities

1. Write the following words into your book and then write an explanation of the word.
   - deforestation
   - agricultural
   - rainforest
   - greenhouse gas
   - primary cause
   - subsistence farming
   - logging
   - fuel wood
   - palm oil
   - sustainable
   - corruption
   - food security

2. Explain why deforestation is a problem for our environment.

3. Explain which countries/regions are most affected by deforestation.

4. Describe the main causes of deforestation.

5. Research: Explain how cutting a tree down contributes to green house gas emissions and therefore global warming.

6. Create: Write a letter to Bolivia's President asking for Bolivia's government to please stop deforestation.

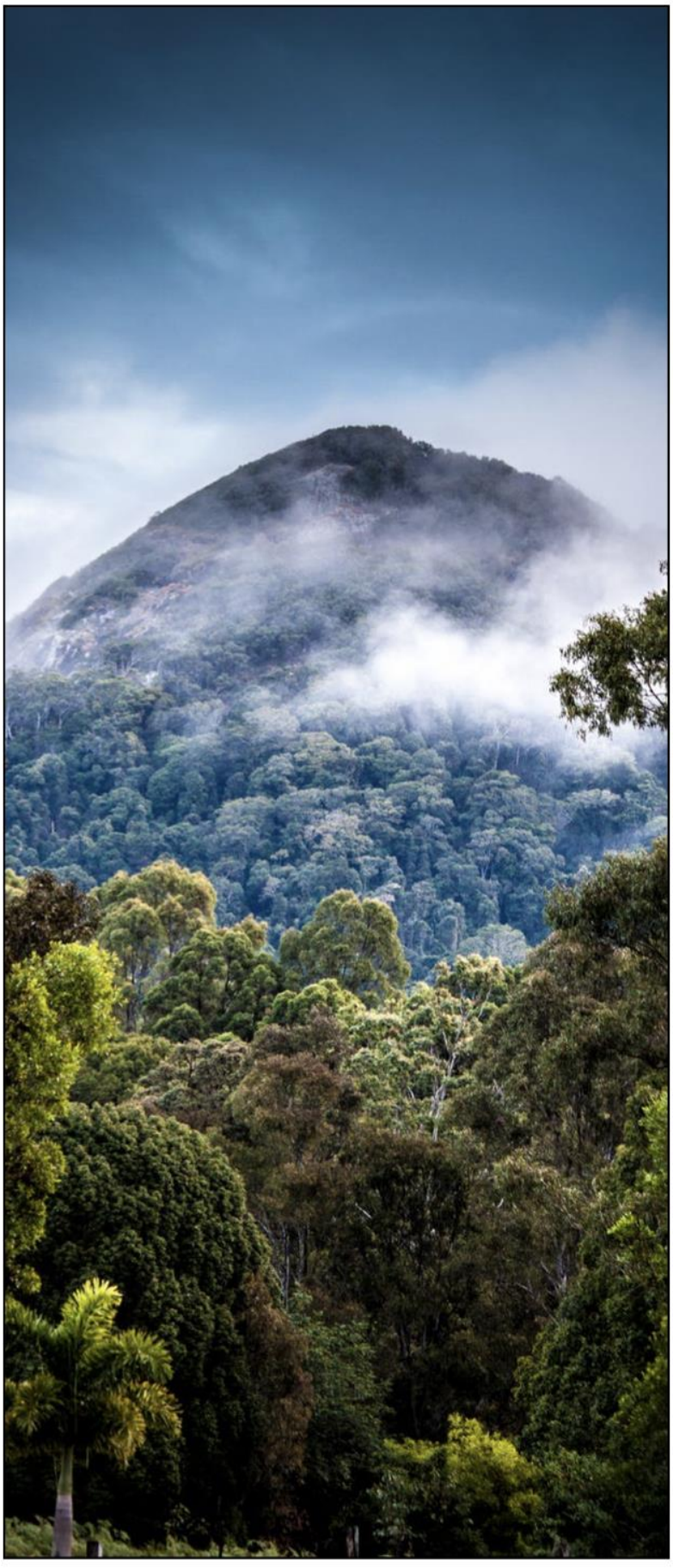
7. Critical thinking: Describe how might you check this article to be sure it is accurate.

8. Reflect: List at least three things you learnt about deforestation from this material.

9. List 3 questions related to information in this article to which you would like answers. Describe how could you find the answers to your questions and how you can be sure they are accurate.

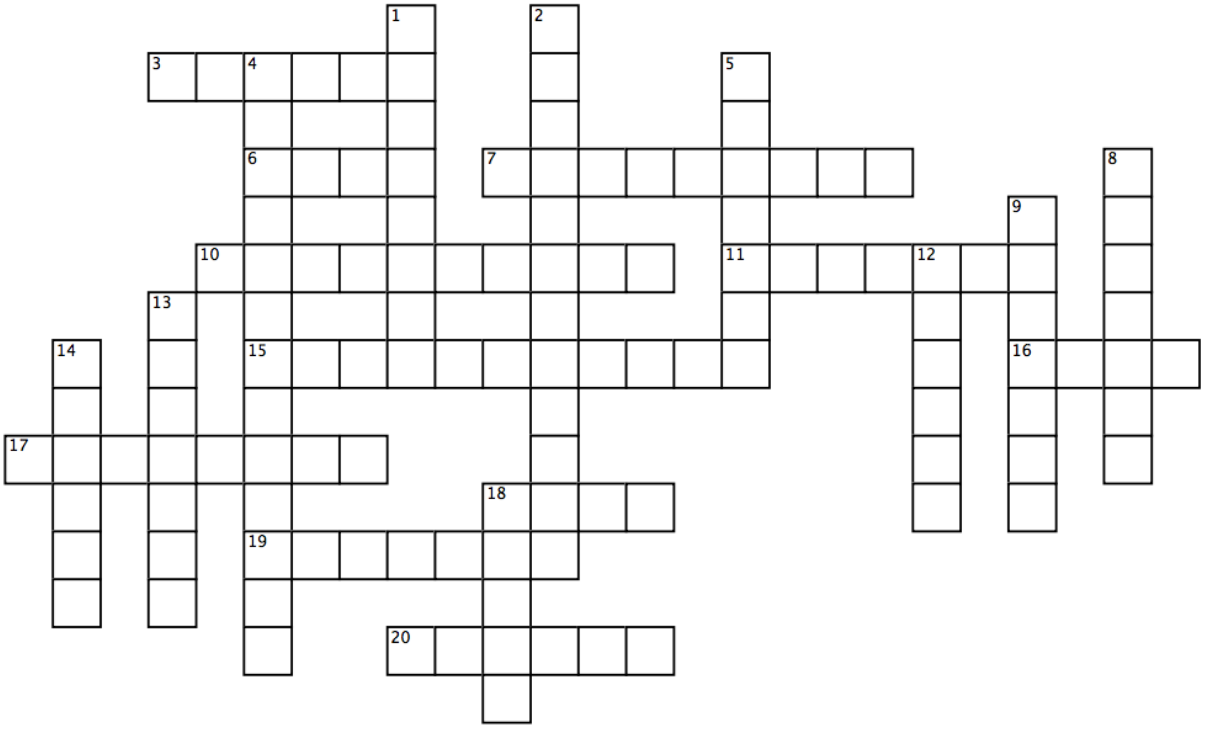
What can I do?

1. Learn more about the forests near where you live. Learn what plants and animals live in the forest. When you know about a forest, you will be more inclined to take care of it.
2. Ask your friends to visit a forest so they can learn about it. Is there anything you and your friends can do? Gathering plastic trash from the forest, for example.
3. Palm oil, soy, beef, and cocoa are the main agricultural products that are responsible for global deforestation. Use the internet to find out what products these ingredients are used to make, for example palm oil is used in the production of some low-quality chocolate and soap. Find out which companies use it and stop buying their products.
4. Write to the companies that use these products and tell them you have stopped buying their products because they are major causes of deforestation.
5. Use your social media accounts to tell your friends about deforestation, what its effects are, what causes it, and what they can do to help.
6. Send emails to government officials and tell them you do not want your country contributing to deforestation by buying these products.
7. Find a local organization that plants trees and help.
8. Grow seedlings and when they are big enough, plant them around your neighborhood. Encourage your teachers to start a program in your school in which students grow seedlings and plant them in an area that needs trees.



Deforestation 1

Answer the crossword using information from the article.



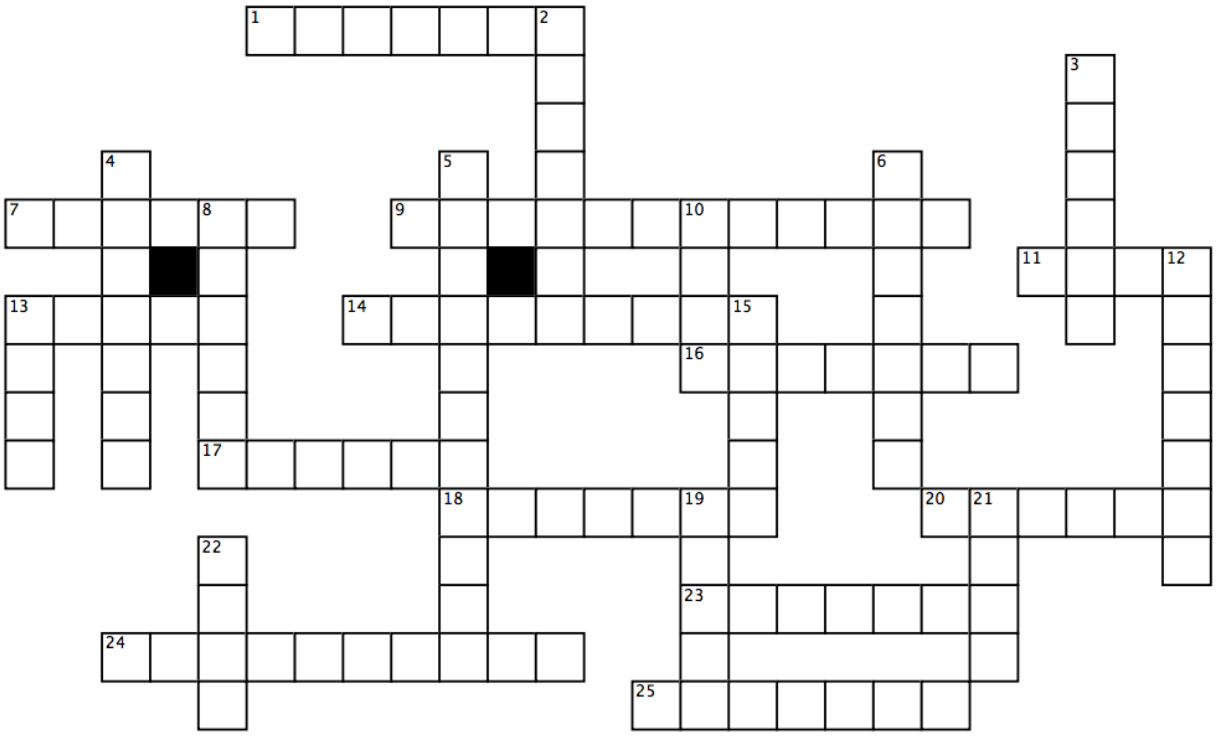
Across

3. France's government announced it will 'encourage every actor (producers, businesses, investors, and consumers), to change their practices in order to _____ deforestation.'
6. In Sudan, trees are cut down to be used as household cooking _____ and heating, and for commercial production of steam-generated electricity.
7. More than 2000 square miles of Russia's vast forests are lost to _____ annually.
10. Deforestation is responsible for about 20% of all _____ gas emissions.
11. Mexico's _____ industry is responsible for the loss of tropical and pine forests.
15. _____ farming is responsible for almost half of all deforestation.
16. The UN declared a Sustainable Development _____ of ending deforestation by 2030.
17. An area about size of a _____ field is cleared from the Amazon rainforest every minute for agriculture.
18. The French government passed a law stating that _____ oil is not considered a biofuel.
19. Deforestation in Peru's share of the Amazon rainforest is due to _____ logging and clearing forests for use as agricultural land.
20. Only about 2.4 million _____ miles of the Earth's original 6 million _____ miles of forest remains.

Down

1. Indonesia's palm oil industry has driven destruction of its rainforest and also its _____.
2. The EU is a major importer of _____ products, such as palm oil, soy, and cocoa.
4. _____ is the removal of forest from land which is then converted to agricultural or urban use.
5. All countries are affected by deforestation because it is a significant factor in global warming and therefore _____ change.
8. The _____ cause of deforestation is agriculture.
9. Large areas of Brazil's share of the Amazon rainforest is being destroyed by illegal _____, exacerbated by government corruption.
12. Most deforestation occurs in tropical rainforests such as the _____ Rainforest.
13. Just 6% of Nigeria's original forests remain because of trees being cut for household cooking fuel and _____.
14. Deforestation is a significant contributor to _____ warming.
18. Logging and the palm oil industry account for about 1000 square miles of trees lost in _____ New Guinea annually.

Deforestation 2



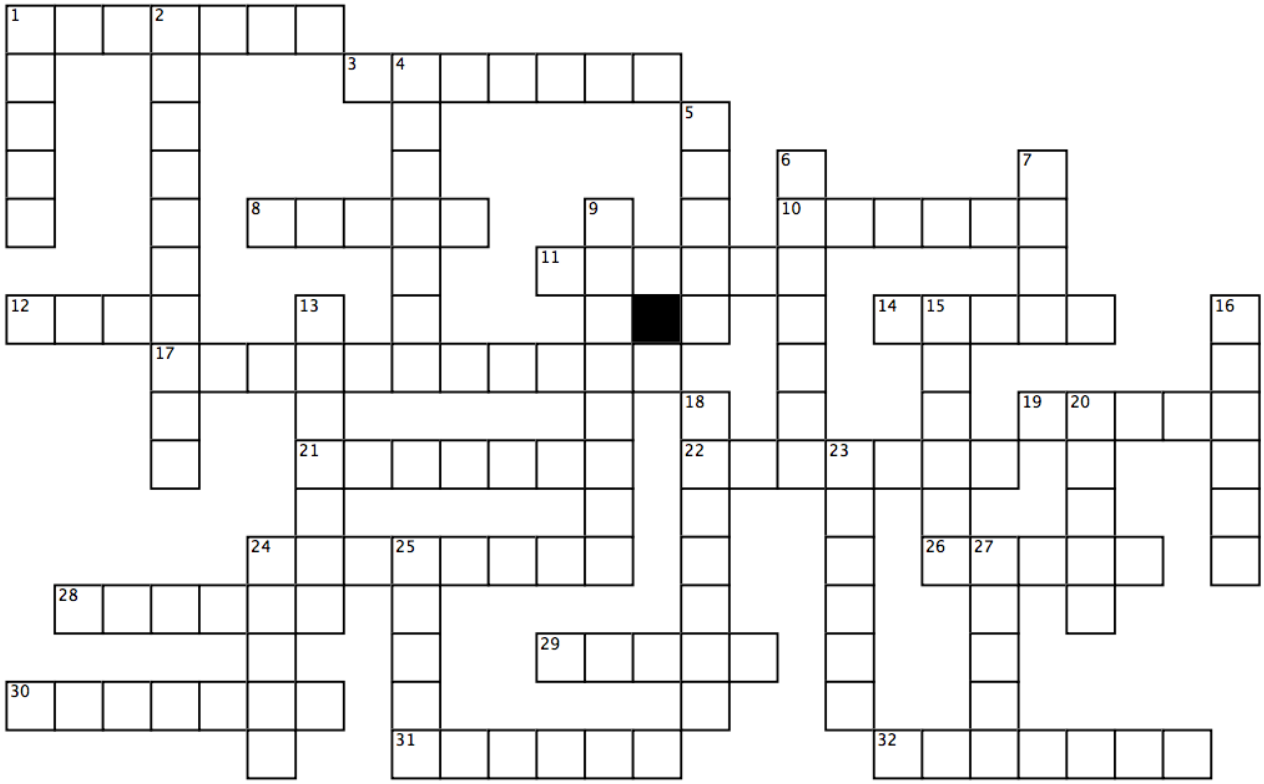
Across

1. 80% of all land _____ and plants live in forests.
7. Forests absorb greenhouse gases that would otherwise fuel _____ warming.
9. Deforestation occurs because people clear forested land to make space for _____ activities such as cattle ranching.
11. Forests keep the _____ moist by blocking the sun and inhibiting evaporation.
13. Cutting down _____ releases carbon dioxide into the atmosphere.
14. Deforestation of tropical rainforests adds more carbon dioxide to the atmosphere than all cars' and trucks' _____.
16. Forests absorb carbon _____ and release oxygen.
17. _____ has the largest area of land deforested.
18. Most deforestation occurs in rainforests which are concentrated in the _____.
20. Deforestation results in more than 1.5 billion tons of _____ dioxide being released into the atmosphere every year.
23. Forests absorb and store carbon, so that when trees are cut down, the carbon is released into the atmosphere contributing to the greenhouse effect whihc causes global warming which causes _____ change.
24. If the current rate of deforestation continues, 100 years from now there will be no more _____.
25. Deforestation occurs because people take wood for household fuel and _____.

Down

2. Forests are home to millions of plant and animal _____.
3. The _____ rainforest is one of the Earth's most threatened forests.
4. _____ are one the main natural factors that regulate and determine the Earth's climate.
5. _____ is one of the most significant causes of deforestation.
6. Deforestation is the main cause of global _____ and therefore climate change.
8. Deforestation has a double effect: it releases carbon dioxide and there are less trees to _____ carbon dioxide.
10. Forests cover a large proportion of the world's _____ area, but large areas of forest are being lost each year.
12. Deforestation is caused by household fuel burning, agriculture, and unsustainable _____.
13. Deforestation is the loss of _____ cover, due to forests being cleared.
15. Forests are called 'carbon _____' because they trap or hold carbon.
19. Forests play a significant role in the water _____ by releasing water vapor into the atmosphere.
21. Although Brazil has lost the largest _____ of forest, Comoros has lost 50% of its forests.
22. Forests prevent _____ erosion.

Brazil



Across

1. Early sailors often called Brazil Terra di Papaga (Land of _____).
3. Rio de Janeiro is home to two well known _____, the Ipanema and the Copacabana.
8. The predominant religion throughout Brazil is _____ Catholic.
10. Brazil has been the world's largest producer of _____ for more than 150 years.
11. The Alchemist, by the Brazilian author Paulo _____ de Souza, has sold over 83 million copies, and so is one of the most sold books ever.
12. Brazil spans _____ time zones.
14. Sao _____ is the most populous city in the southern hemisphere.
17. Brazil's Itaipu Dam generates the most _____- of all the world's hydroelectric plants.
19. In the 16th century Brazil's major export was _____, but in the 17th century it was gold.
21. Brazil is the largest country in South _____.
22. Rio de Janeiro hosted the 2016 _____ Games and 2016 Paralympic Games.
24. In September 1822 Brazil declared independence from _____ and declared Prince Pedro de Alcântara the first Emperor of the Brazilian Empire.
26. Most Brazilians _____ Portuguese.
28. The Iguazu Falls are on the Brazil-Argentina _____.
29. The Amazon River _____ includes the vast Amazon rainforest.
30. Brasilia was planned and developed in 1956 to move the capital from Rio de _____ to a more central location.
31. Deforestation of the _____ rainforest has a double-effect on the greenhouse effect and therefore climate change: living trees store CO2 and dead trees release CO2 into the atmosphere.
32. In 2014-2016 a severe _____, caused by El Nino, had a significant impact on Sao Paulo and Rio de Janeiro.

Down

1. In 1831, Brazil's Emperor, Pedro I abdicated, returned to Portugal, and passed the monarchy to his five year old son, _____ II who was eventually crowned in 1841.
2. The Amazon _____ has the greatest biological diversity in the world.
4. Brazil is the only country with the _____ and the Tropic of Capricorn running through it.
5. The final of the 2014 football _____ Cup was played at the Maracana Stadium in Rio de Janeiro
6. Brazil's _____ is eighth-largest by GDP.
7. Brazil's currency, the _____, is pegged to the US dollar.
9. Brazil's national sport is _____ and the men's national team has won the World Cup 5 times.
13. Brazil borders all South American countries except _____ and Chile.
15. Brazil remained neutral in World War 2 until 1942, at which time it joined the _____.
16. The _____ the Redeemer statue overlooking Rio de Janeiro is 30 metres tall and was built in 1931.
18. The Amazon basin includes land in Brazil as well as _____, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela.
20. 85% of Brazil's population live in _____ areas.
23. The Christ the Redeemer statue overlooking Rio de Janeiro is 30 _____ tall and was built in 1931.
24. In 1500 _____ Alvares Cabral claimed the area of Brazil for the Portuguese Empire and it remained a Portuguese colony until 1808.
25. Brazil's original official name was _____ da Santa Cruz (Land of the Holy Cross).
27. Brazil's capital city is Brasilia, but the largest city is Sao _____.