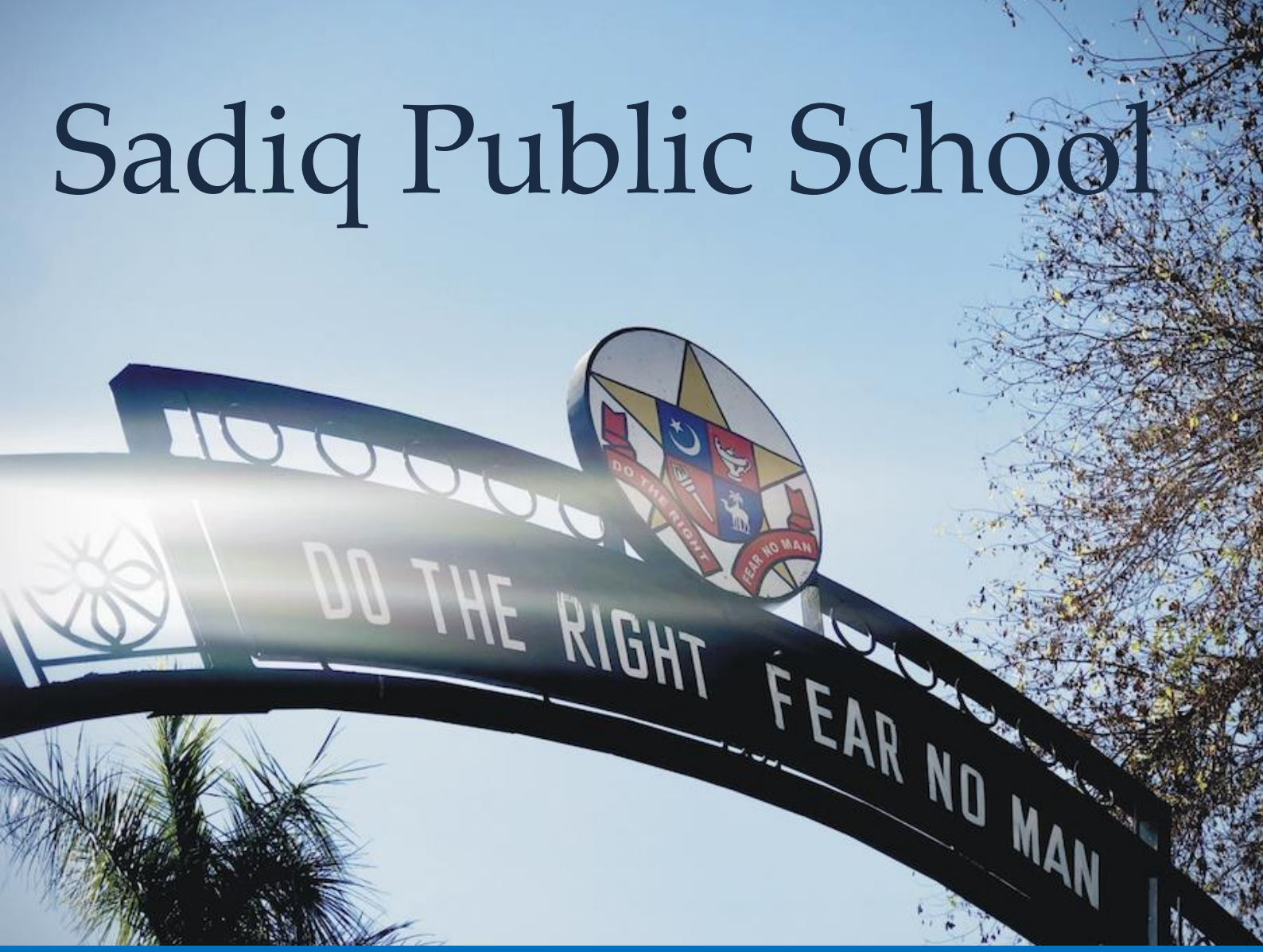
Sadiq Public School



Distance Learning for S1

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

Task: Reading

Read any English newspaper of your choice daily.

Activities after reading

1. Select the articles of your interest from different magazines and newspapers, share your views about the articles with a friend in a letter.

2. Select difficult words from the articles you read and write in your own dictionary (make one for yourself) with all the possible meanings. Add new words in your dictionary booklet for each letter (A-Z) with their meanings.

Task: Writing

1. Recall 4 topics of your favourite stories. Create your own stories on the topics with a different theme.

2. In a letter to your relative living abroad share your feelings about the current Covid-19 situation. Write how you felt during the lockdown, about your relationships, people's behavior and your fears and hopes about your future.

3. Make a questionnaire (of 10 questions) about the current situation and interview your family members, ask them to share their views.

4. How important to us are our emotions? Discuss their power for good and evil, and say whether the world would be a better place without them. Prepare a diary entry.

5. Pretend that you are an old Sadiqian revisiting your school after an absence of seven years. Recall some of the pleasant incidents of your school life. Write a paragraph of about 150-200 words.

Task: Listening Comprehension

Listen to BBC news /watch BBC channel and write down interesting general knowledge information.

2. Urdu Language

1۔ کرونا وائرس کی وبا کے دوران آپ کی زندگی کے معمولات میں کیا تبدیلی آئی ہے؟ کون سے ایسے اہم کام تھے جو نامکمل رہ گئے اور ان کی تکمیل کے لیے آپ نے کیا منصوبہ بندی کی ہے؟

2۔ یوم آزادی کے حوالے سے پاکستان کے اخبارات ورسائل میں شائع ہونے والی معلومات تفصیل سے تحریر کریں۔

3۔ اپنی پسندیدہ اردو فلم کی کہانی اپنے الفاظ میں تحریر کریں اور اپنی پسندیدگی کی وجہ بتائیں۔

4۔ چھٹیوں کے دوران آپ نے جن اردو کتب کا مطالعہ کیا، ان میں سے دو کتب پر تبصرہ تحریر کریں۔

5۔ علامہ اقبال کی بچوں کے لیے لکھی جانے والی نظموں کے نام تحریر کریں اور کوئی سی دو نظموں کا خلاصہ تحریر کریں۔

6۔ چھٹیوں کے دوران نصاب کا مطالعہ کرتے ہوئے آپ کو جو مشکلات پیش آرہی ہیں، ان کے بارے میں خط لکھ کر اپنے استاد صاحب کو آگاہ کریں۔

7۔ ایس پی ٹریفک کے نام درخواست لکھ کر انہیں آگاہ کریں کہ شہر کے اہم چوراہوں پر نصب شدہ ٹریفک لائیٹس خراب ہیں جس کی وجہ سے ٹریفک کے بہاؤ میں رکاوٹ اور حادثات میں اضافہ ہو رہا ہے۔

8۔ کرونا کے حوالے سے ایک ایسی کہانی لکھیں جس میں یہ بتایا گیا ہو کہ جو لوگ احتیاط کا دامن چھوڑ دیتے ہیں، انہیں نقصان اٹھانا پڑتا ہے۔ نتیجہ: "احتیاط علاج سے بہتر ہے"۔

9۔ قومی آزمائش اور مصیبت کے وقت مہنگائی پیدا کرنے والے مافیا کے حوالے سے دو دوستوں کے درمیان مکالمہ تحریر کریں۔

10۔ اپنے پسندیدہ کھیل پر ایک تفصیلی مضمون تحریر کریں۔

3. Mathematics

Chapter 1: Matrices and Determinants

Important Definitions

1. Row Matrix

   A matrix is called Row Matrix, if it has only one row e.g. B =[2 3 4],

2. Column Matrix

A matrix is called Column Matrix, if it has only one column e.g. B = $\begin{bmatrix}1\\0\\0\end{bmatrix}$,

3. Symmetric Matrix: A matrix M is called symmetric if $M^t = M$

4. Skew Symmetric Matrix: A matrix M is called symmetric if $M^t = -M$

5. Singular Matrix: A matrix M is called singular if $|M| = 0$

6 Non- Singular Matrix: A matrix M is called non - singular if $|M| \neq 0$

Short Questions

1. Find the order of $H = \begin{bmatrix}2 & 3 & 4\\1 & 0 & 6\end{bmatrix}$.

2. From the following matrices, identify row matrix and null matrix B =[2 3 4], E = [0]

3. From the following matrices identify column matrix and identity matrix $\begin{bmatrix}1\\0\\0\end{bmatrix}$, $\begin{bmatrix}1 & 0\\0 & 1\end{bmatrix}$.

4. From the following matrices identify diagonal and scalar matrix B = $\begin{bmatrix}2 & 0\\0 & -1\end{bmatrix}$, E = $\begin{bmatrix}5-3 & 0\\0 & 1+1\end{bmatrix}$

5. Find the negative of the matrix E = $\begin{bmatrix}1 & -5\\2 & 3\end{bmatrix}$.

6. Find the additive inverse of F = $\begin{bmatrix}\sqrt{3} & 1\\-1 & \sqrt{2}\end{bmatrix}$.

7. If D = $\begin{bmatrix}1 & 2 & 3\\-1 & 0 & 2\end{bmatrix}$, then find D + $\begin{bmatrix}0 & 1 & 0\\2 & 0 & 1\end{bmatrix}$.

8. If C = , [1 − 1 2] , then find (-2)C.

9. Perform the indicated operation and simplify [2 3 1] + ([1 0 2] – [2 2 2]).

10. Perform the indicated operation and simplify $\left(\begin{bmatrix}1 & 2\\0 & 1\end{bmatrix} + \begin{bmatrix}2 & 1\\1 & 0\end{bmatrix}\right) + \begin{bmatrix}1 & 1\\1 & 1\end{bmatrix}$.

11. Multiply the $\begin{bmatrix}-1 & 2\\1 & 3\end{bmatrix}\begin{bmatrix}0 & 0\\0 & 0\end{bmatrix}$.

12. Find that the given matrix $\begin{bmatrix}7 & -9\\3 & 5\end{bmatrix}$ is singular or non- singular.

13. Find the multiplicative inverse (if it exist) of $\begin{bmatrix}-2 & 6\\3 & -9\end{bmatrix}$.

14. Are these matrices $\begin{bmatrix}3\\1\end{bmatrix} and \begin{bmatrix}2+1\\3\end{bmatrix}$ comfortable for addition?

15. If B = $\begin{bmatrix}1\\-1\end{bmatrix}$, then find B + $\begin{bmatrix}-2\\3\end{bmatrix}$.

16. If A = $\begin{bmatrix}3 & 0\\-1 & 2\end{bmatrix}$ and B = $\begin{bmatrix}6\\5\end{bmatrix}$, find BA (if possible).

17. Find the determinant of B = $\begin{bmatrix}1 & 3\\2 & -2\end{bmatrix}$.

18. Determine whether the given matrices $\begin{bmatrix}1 & 2\\2 & 3\end{bmatrix}$ *and* $\begin{bmatrix}-3 & 2\\2 & -1\end{bmatrix}$. are multiplicative inverse of each other:

19. Verify that if A = $\begin{bmatrix}1 & 2\\0 & 1\end{bmatrix}$, then $(A^t)^t = A$

20. Find the negative of the matrix D = $\begin{bmatrix}-3 & 2\\-4 & 5\end{bmatrix}$

Chapter 2: Real and Complex Numbers

Important Definitions

1. Rational Numbers: All numbers of the form $\frac{p}{q}$ where p,q are integers and q ≠ 0 are called Rational Numbers. e.g. $\frac{4}{9}$
2. Irrational Numbers: All numbers which cannot be written in the form $\frac{p}{q}$ where p, q are integers and q ≠ 0 are called Irrational Numbers e.g. $\sqrt{7}$
3. Complex Numbers: A number of the form $Z = a + ib$ *where* a, b *are real numbers and* $i = \sqrt{-1}$
4. Complex Conjugate: The numbers $a + ib$ *and* $a - ib$ *are conjugate of each other*.

(Short Questions)

1. Identify which of the following is rational and irrational number: (i) 7.25 (ii) $\sqrt{29}$.
2. Give a rational number between $\frac{3}{4}$ and $\frac{5}{9}$.
3. Use laws of exponents to simplify: $(2x^5y^{-4})$ $(-8x^{-3}\ y^2)$.
4. Simplify: $5^{2^3} \div (5^2)^3$.
5. Simplify: $(x^3)^2 \div x^{3^2}$, x ≠ 0.
6. Evaluate: : $(-i)^8$.
7. Write the conjugate of: (i) - 4 –i (ii) i - 3 .
8. Write the real and imaginary part of (i) - 3i (ii) 2 + 0i .
9. Express complex number 2(5+4i) - 3(7+4i) in the standard form a+ib, where a and b are real numbers.
10. Convert the fraction$\frac{205}{18}$ into decimal fraction.
11. Express the following recurring decimal as the rational number $0.\overline{5}$.
12. Give the name of the property used in the followings: (i) $\sqrt{24} + 0 = \sqrt{24}$, (ii) $(-\frac{5}{8})(-\frac{8}{5}) = 1$.
13. Write radical expression $\sqrt[3]{-64}$ in exponential notation.
14. Express recurring decimal $0.\overline{67}$ as the rational number.
15. Find the value of x and y if $x + i\ y + 1 = 4 - 3\ i$.
16. Simplify $(2 - \sqrt{-4})$ $(2 - \sqrt{-4})$ and write your answer in the form of a + *i* b.
17. Write exponential expression $2^{3/5}$ in radical form.
18. Simplify $\sqrt[3]{-125}$
19. Simplify $(x^3)^2$

Chapter 3: Logarithms

Important Definitions

1. Scientific Notation: A number written in the form $a \times 10^n$ where $1 \leq a < 10$ and n is an integer is called the Scientific Notation.
2. Characteristics: The integral part of the logarithm of any number is called Characteristics.
3. Mantissa: The decimal part of the logarithm of any number is called Mantissa. It is always positive.

(Short Questions)

1. Express (i) 60,000,000 (ii) $\frac{275,000}{0.0025}$ in scientific notation.
2. Express (i) 5.06×10^{10} (ii) 9.018×10^{-6} in ordinary notation.
3. Write the log 5 + log 6 – log 2 in the form of a single logarithm.
4. Write log $\log \sqrt[3]{\frac{7}{15}}$ into sum or difference.
5. Write log $\frac{(22)^{1/3}}{5^3}$ into sum or difference.
6. Write the 2 logx – 3 logy in the form of a single logarithm.
7. Express 416.9 in scientific notation.
8. Write the log $\frac{25 \times 47}{29}$ in the form of a single logarithm.
9. Evaluate log 512 to the base $2\sqrt{2}$.
10. Express log x – 2 log x + 3 log (x+1) – log $(x^2 - 1)$ as a single logarithm.
11. Calculate the following: $\log_3 2 \times \log_2 81$.
12. If log 31.09 = 1.4926, find values of the following: (a) log 310.9 (b) log 0.003109.
13. Evaluate $\log_2 \frac{1}{128}$
14. Calculate $\log_5 3 \times \log_3 25$.
15. What replacement for the unknown in a $\log_a 6 = 0.5$, will make the statement true?
16. If $\log 2 = 0.3010, \log 3 = 0.4771, \log 5 = 0.6990$, then find the value of $\log \sqrt{3\frac{1}{3}}$.
17. Find the value of x from the given statement: $\log_{64} 8 = \frac{x}{2}$.
18. Find the value of x in the given statement $\log_{625} 5 = \frac{1}{4}x$.
19. What replacement for the unknown in the $10^p = 40$ will make the statement true?
20. Find the common logarithm of the following numbers.
    (a) 232.92 (b) 0.00032

4. Islamiat

1۔ والدین کے حقوق و فرائض تحریر کریں۔

2۔ انسانی زندگی پر روزے کے معاشرتی اثرات بیان کریں۔

3۔ اسلام وبائی امراض سے بچاؤ کے حوالے سے کیا ہدایات دیتا ہے؟

4۔ اسلامی احکامات کی روشنی میں کھانے پینے کے آداب تحریر کریں۔

5۔ جانوروں کے حقوق کے متعلق اسلامی تعلیمات کیا ہیں؟ جانوروں سے حسن سلوک کے بارے میں نبی کریم ﷺ کی زندگی کا کوئی واقعہ تحریر کریں۔

6۔ درخت لگانے اور پانی ضائع نہ کرنے کے متعلق اسلامی تعلیمات کیا ہیں؟

7۔ سلطان صلاح الدین ایوبی اور طارق بن زیاد کی فتوحات پر نوٹ لکھیں۔

8۔ نماز ترجمہ کے ساتھ یاد کریں اور لکھیں۔

9۔ قرآن پاک کی آخری چار سورتیں بمعہ ترجمہ یاد کریں اور لکھیں۔

10۔ نماز ادا کرنے کا طریقہ تحریر کریں۔

11۔ قرآن و حدیث کی روشنی میں صدقات و خیرات کی اہمیت بیان کریں۔

5. Social Studies

1. Why are forests known as carbon stores?
2. Give reasons for large-scale deforestation in Pakistan.
3. What can be done to reduce large-scale deforestation in Pakistan?
4. Explain the causes of global warming.
5. What can be done to increase the water supply in Pakistan?
6. Explain with the help of diagrams how solar and lunar eclipses occur.
7. Explain the difference between astronomy and astrology. (One is real Science and the other is just silly.)
8. Why is Saturn an interesting planet?
9. What is meant by the summer solstice?
10. Name the solar park of Bahawalpur.
11. Describe the advantages and disadvantages of solar energy.
12. Why do we study history?
13. How can we ever be sure that historical events are recorded accurately?
14. Make a list of reasons why early civilizations began in river valleys.
15. Why are there fragments of shells in the Cholistan Desert?
16. Which famous Greek philosopher tutored Alexander the Great?
17. The Silk Road was started in which dynasty.
18. During the second crusade, which city did Saladin recapture?
19. Civilization in Mesopotamia developed between which two rivers?
20. Write the distribution of water on the Earth.
21. Draw a world map (with pencil & paper).
22. How accurate is your map? How does it compare to the 'real map of the world'? Why is it so difficult to draw an accurate map of the world?
23. What did you put in the centre of your world map? Why?
24. What are the main differences between a globe and a map?
25. Why do we need to realize that our Earth is fragile?
26. The Earth's surface is made up of plates. What does this mean/ can you explain this?
27. What causes earthquakes? What evidence is there to support your answer?
28. Explain the big bang theory? Do you believe it? Why? Why not?
29. Draw (with a pencil & paper) a map of Pakistan – and on it, include as may as possible geographical features (in their correct places), e.g. Nanga Parbat, K2, Cholistan Desert, Karachi, Islamabad, Taxila, Indus River, Lake Khanpur, Mangla Dam, Tharparkar Desert…
30. Can you explain the lines of longitude and how they relate to time zones around the world?
31. What causes global warming and how does that cause climate change?

6. Physics

Topic: Newton's Laws of Motion

Dynamics:

The branch of mechanics that deals with the study of motion of an object and in which we study the cause of its motion is called dynamics.

In dynamics, motion of body is studied with the reference of mass and force.

Force:

A force moves or tends to move, stops or tends to stop the motion of a body. The force can change the direction of motion of a body

Example: Pushing a door to open and close requires force.

Newton's 1^{st} Law of Motion:

Newton's 1^{st} Law of Motion:

Is also called as Law of Inertia, which states that: "A body continues its state of rest or of uniform motion in straight line, provided no net force acts on it."

Newton's 2^{nd} Law of Motion:

When a net force acts on a body, it produces acceleration in the body in the direction of net force. The magnitude of this acceleration is directly proportional to the net force acting on the body and inversely proportion to its mass.

Formula: F = ma

Newton's 3^{rd} Law of Motion:

To every action, there is an equal but opposite reaction.

$$F_{12} = -F_{21}$$

Example:

Find the acceleration that is produced by a 20 N force in a mass of 8 kg.

Solution:

Here m = 8 kg

F = 20 N

a = ?

Formula: $F = m\,a$

20 N = 8 kg x a

$$a = \frac{20\ N}{8\ kg} = \frac{20\ kg.m/s^2}{8\ kg} = 2.5\ m/s^2$$

1. A force of 20 N moves a body with an acceleration of 2 m/s^2 . What is its mass?
2. How much force is needed to prevent a body of mass 10 kg from falling?
3. Find the acceleration produced by a force of 100 N in a mass of 50 kg.

Activity 1: Newton's First Law

Materials: coins, playing cards and glass.

Take a glass and cover it with a piece of cardboard.

Place a coin on the cardboard as shown in figure. Now

flick the card horizontally with a jerk of your finger.

Questions

1. Does the coin move with the cardboard?
2. Where does the coin go as the cardboard flies away?
3. How does Newton's First Law apply to the coins remaining in place?
4. How do different coins react to the force of the playing card?

Activity 2: Newton's Second Law

Materials: table tennis balls, golf balls, tennis balls, plastic rulers, wooden rulers, paper, writing material

Newton's Second Law states that 'F = ma', or 'force equals mass times acceleration. Place a table tennis ball on a desk, and then place the wooden ruler behind it. Allow the tennis ball to gently bend back the ruler, and allow it to snap back to propel the ball in a forward direction. Record the distance moved by the ball.

After recording the distance, repeat the above procedure with the golf balls and tennis balls. Then have them repeat the experiment with the plastic rulers. Lastly, have them to compare the six different measurements.

Questions

1. What does happen if you try this experiment by using bowling ball instead of a table tennis ball?
2. What does happen if you use yardsticks instead of a ruler?

Activity 3: Newton's Third Law

For every action, there is an equal and opposite reaction.

Stretch out your palm and hold a book on it.

1. How much force do you need to prevent the book from falling?
2. Which is action?
3. Is there any reaction? If yes, then what is its direction?

7. Chemistry

Branches of Chemistry

Identify the branch of chemistry in each of the following examples, and also give problem solving strategy.

Solved Sample Question :

"Photosynthesis produces glucose and oxygen from carbon dioxide and water in presence of chlorophyll and sunlight". Which branch of chemistry is this?

Answer: Biochemistry (Photosynthesis is a chemical reaction that occurs in plants that are living organism.)

1. Plantation helps in overcoming greenhouse effect.
2. Haber's process converts large quantities of hydrogen and nitrogen into ammonia.
3. Ammonia is a colourless gas with pungent irritating odour. It is highly soluble in water.
4. A chemist performed an experiment to check the percentage purity of a sample of glucose.
5. An analyst determines that Nitrogen dioxide is responsible for acid rain.
6. Chlorofluorocarbon compounds are responsible for the depletion of Ozone Layer.
7. Alpha particles when bombard on nitrogen atom, it emits radioactive substances.
8. Acetylene is the simplest hydrocarbon that contains carbon-carbon triple bond. Hydrocarbons are the compounds of carbon and hydrogen.
9. Calorimeter is a device that measures the amount of heat a substance absorbs on heating or emits on cooling.

Elements, Compounds, and Mixture

Activity: Read and understand definition of element, compound and mixture. Try to make a visual model that can help to understand each of the term by using anything that is available to you. Such as the given paper clips representation, or use something other than the given example.

Exercise:

Q1. For each of the compounds given below: name the elements which are present and state the number of atoms of each element present.

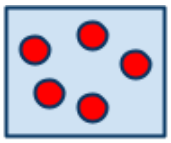
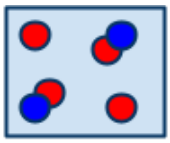
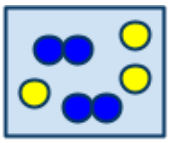
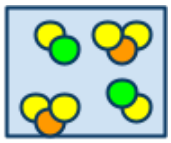
1. Water H_2O

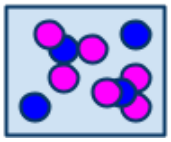
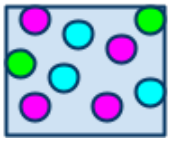
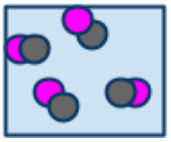
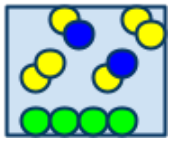
Ans: 2 hydrogen and 1 oxygen atom

2. Sulphuric acid H_2SO_4
3. Calcium oxide CaO

4. Sugar $C_{12}H_{22}O_{11}$
5. Nitrogen dioxide NO_2

Q2. Label the following as a pure substance: state whether it is an element or a compound, or a mixture. State, what is in the mixture (how many different elements or compounds)?

a.  b.  c.  d. 

e.  f.  g.  h. 

Part e is solved for you:

"e" is a mixture of a compound and an element

Q3. Identify each material as either a mixture or a pure substance.

- If the material is a mixture, identify it as either homogenous or heterogeneous.
- If the material is a pure substance, identify it as an element or a compound.

	Material	Mixture Pure Substance	Homogeneous or Heterogeneous Element or Compound
1.	Aluminum foil		
2.	Air		
3.	Soil		
4.	Water (H_2O)		
5.	Steel		
6.	Bag of M&M's		
7.	Sugar		
8.	Sugar water		
9.	Pizza		
10.	Blood		
11.	Table Salt (NaCl)		
12.	Iron Filings		
13.	Gasoline		
14.	Coffee		
15.	Orange Juice		
16.	Pencil lead		
17.	Copper		
18.	Bronze		
19.	Milk and Cereal		
20.	Acetic acid		

Title: Models of the Atom

Q1. Identify each model

with correct description of the model of the atom (Bohr, Democritus, Rutherford, and Thomson).

1. Atoms of the same element are identical and different from atoms of other elements
2. Hydrogen atoms emit light when excited electrons lose packages of energy.
3. All atoms contain tiny particles that are attracted to a positively charged plate.
4. I think, there is a limit to the numbers of times that matter can be divided, but have no data.
5. A very few alpha particles were deflected almost straight back by the gold foil.

Q2. Fill in the missing information in the table below.

Particle	Discovery Order	Location in Atom
Proton		
Electron		
Neutron		

Q3. What were the observations in scattering experiment that led Rutherford to make the following conclusions?

i) Most of the space in an atom is empty.

ii) Whole mass of an atom is present in its center.

Activity: Make a model of Bohr's Atomic Model.

Atomic Number and Mass Number, Isotopes, and Electronic Configuration:

Activity:

Q1. Helium atom has atomic mass of 4 a.m.u. and has two protons in the nucleus. How many neutrons does it have?

Q2. If the K and L shells of an atom are full, then what would be the number of electrons in the atom?

Q3. If the number of electrons in an atom are 8 and the number of protons are also 8, then:

i) What would be the atomic number of the atom?

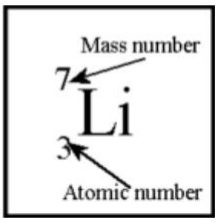
ii) What is the charge on the atom?

Q4. Na+ ion has completely filled K and L shells. Explain.

Q5. The electronic configuration of an element Z is 2,8,6. How many electrons does it require to have a stable configuration?

Atoms are composed of electrons, protons, and neutrons. It is the difference in the numbers of protons in the atoms that determine the different elements. You can determine the composition of an atom of any element from its atomic number and its mass number.

You must be aware of what the numbers on the Periodic Table mean and become familiar with the shorthand notation of writing the mass number and atomic number next to the symbol of the element.



Remember that the atomic number - is the number of protons in the nucleus of the atom of that element.

Remember that the mass number (atomic mass)- is the number of protons and neutrons in the nucleus of the atoms of that element.

The Periodic Table gives us the atomic number of each element. For example, Hydrogen has the atomic number of 1 and Oxygen has the atomic number of 8. Just look at the whole number on the Periodic Table.

There is also a short hand notation where the mass number is written on the upper left hand corner next to the symbol of the element, and the atomic number is written on the bottom left hand corner.

Since each of the atoms on the Periodic Table is electrically neutral, that means that the number of protons (positive charge particles) in the nucleus of an atom must equal the number of electrons (negatively charged particles) around the nucleus.

To determine the number of neutrons in the nucleus subtract the mass number and the atomic number:

Number of neutrons = mass number – atomic number

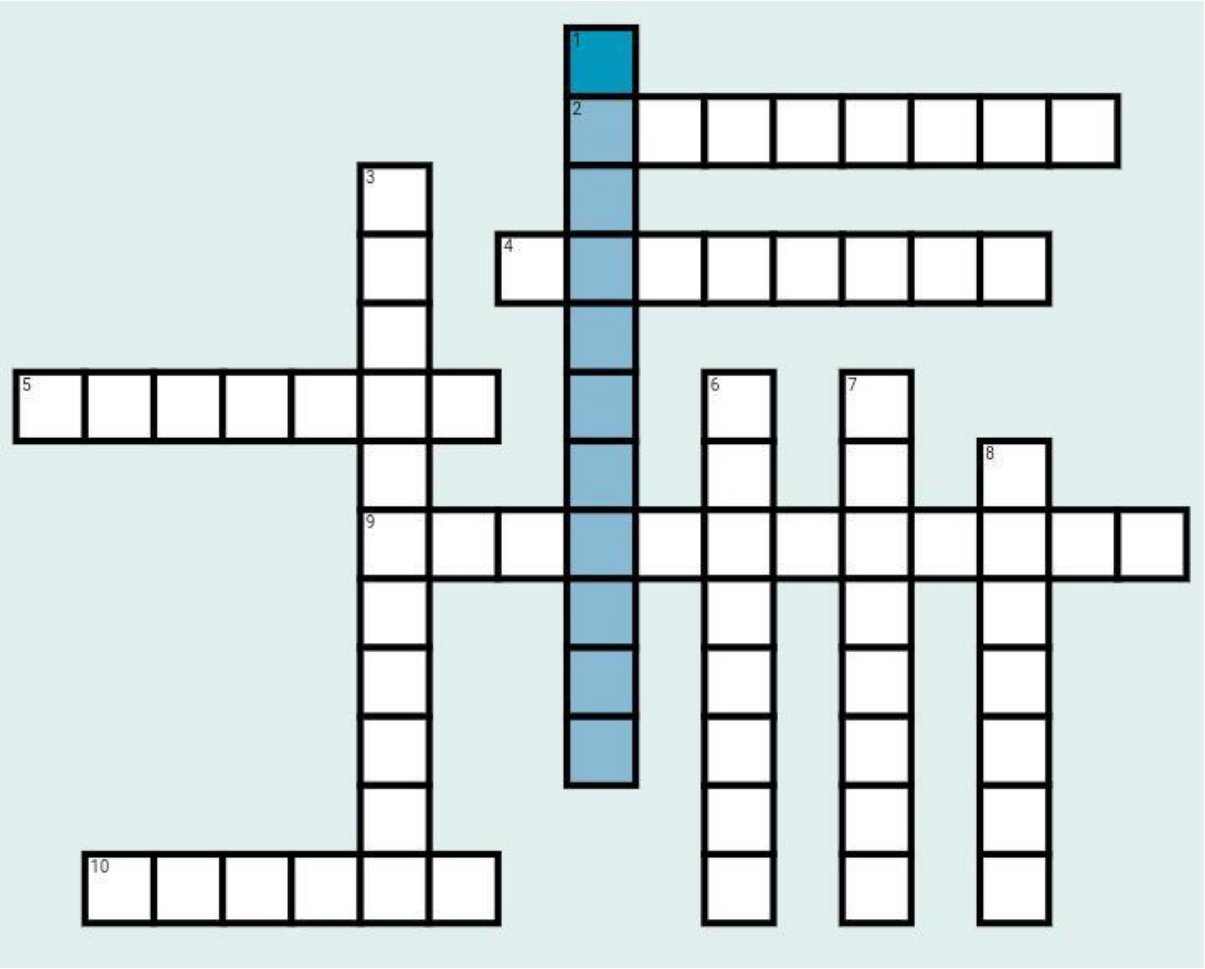
Always have a Periodic Table in front of you. (Student: Always? Even at dinner time? Even while batting ina cricket game?)

Fill the missing information:

Atomic Number	Mass Number	Number of protons	Number of neutrons	Number of electrons	Symbol of Element
9			10		
		14	15		
	47			22	
	55	25			
					Br
8	16				
		47	61		
16			16		
					Pb

8. Biology

Activity 1: Introduction to Biology



Down:

1. internal conditions

3. natural changes that take place

6. cause some sort of reaction

7. inherited characteristic that result from changes over time

8. the science of life

Across:

2. all living things have certain characteristics

4. reaction to a stimulus

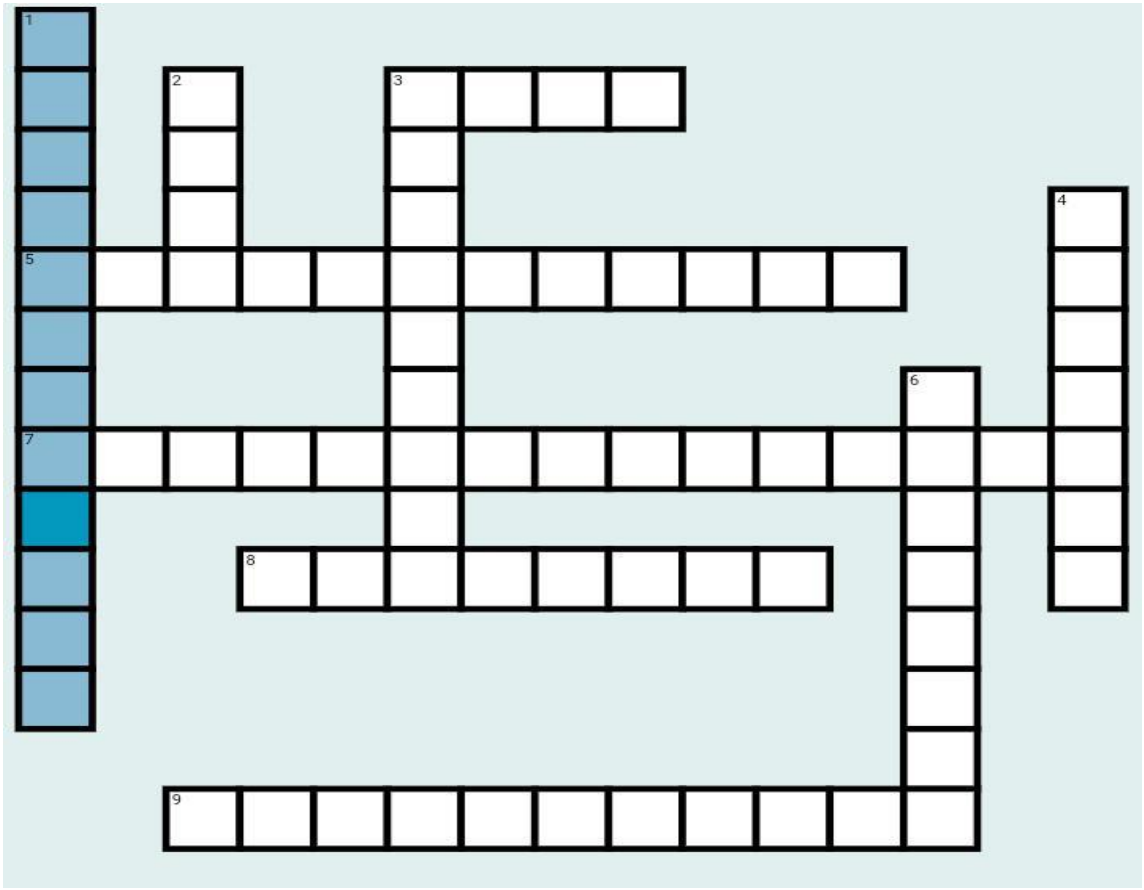
5. organisms that can breed with one another

9. arrange in any orderly way

10. the addition of mass to an object

Activity #2 **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 supplies energy for the cell

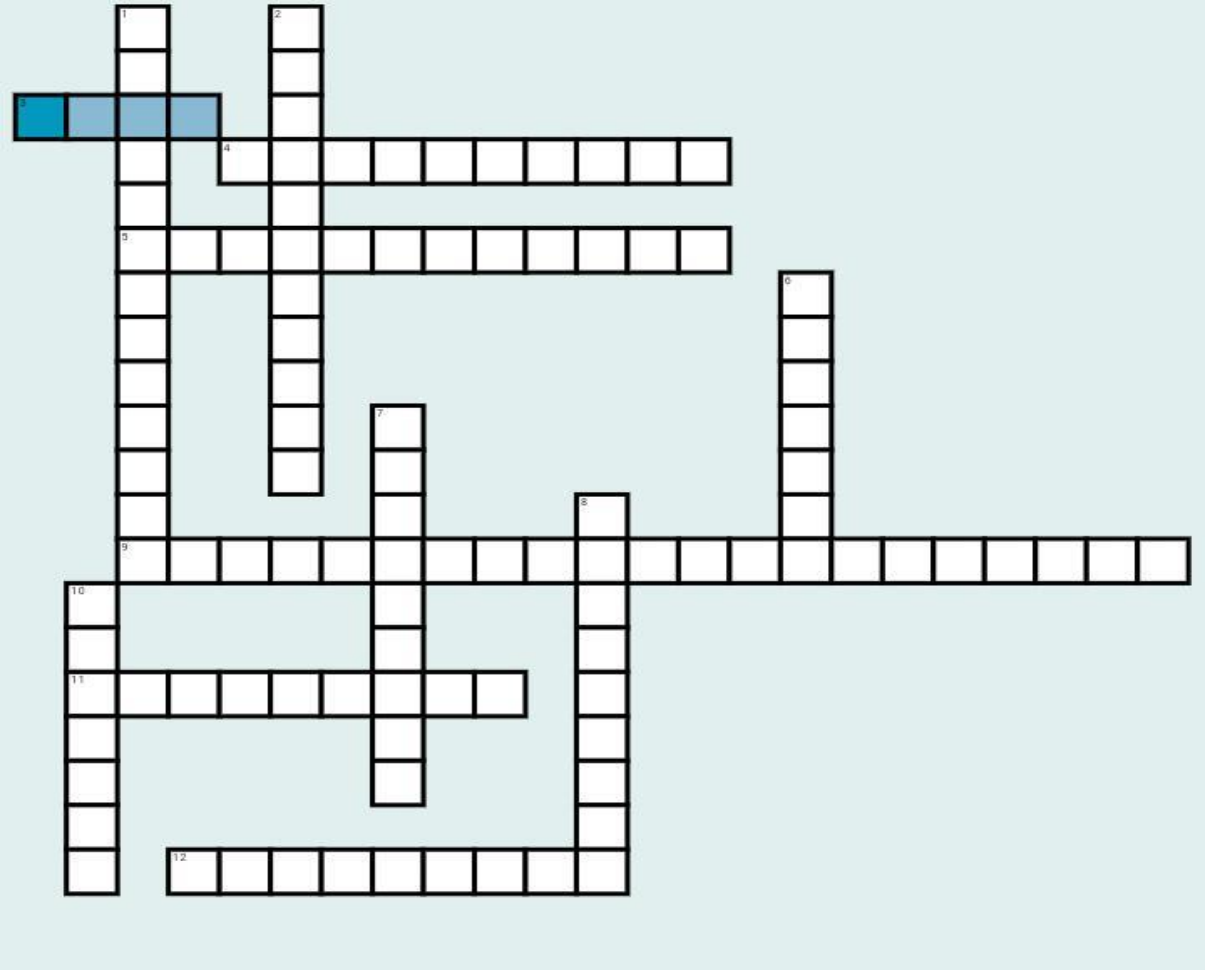
2. surround the cell and protect it

3. a watery, gel like material

4. act as brain of cell

6. store food water and chemicals

Activity 3 **Cell Organelles**



Down:

1.it control what goes in and out of the cell and has semi-permeable barrier

2.it goes through photosynthesis and is only found in plant cell

6.it store things inside of the cell

7.its a tough outside barrier that protects the structure of plant cell

8.it make proteins for the cell

9.it control the cell and has DNA in it

Across:

3. the most simplest level of organization of multicellular organisms

4. it pack and ships things out of the cell

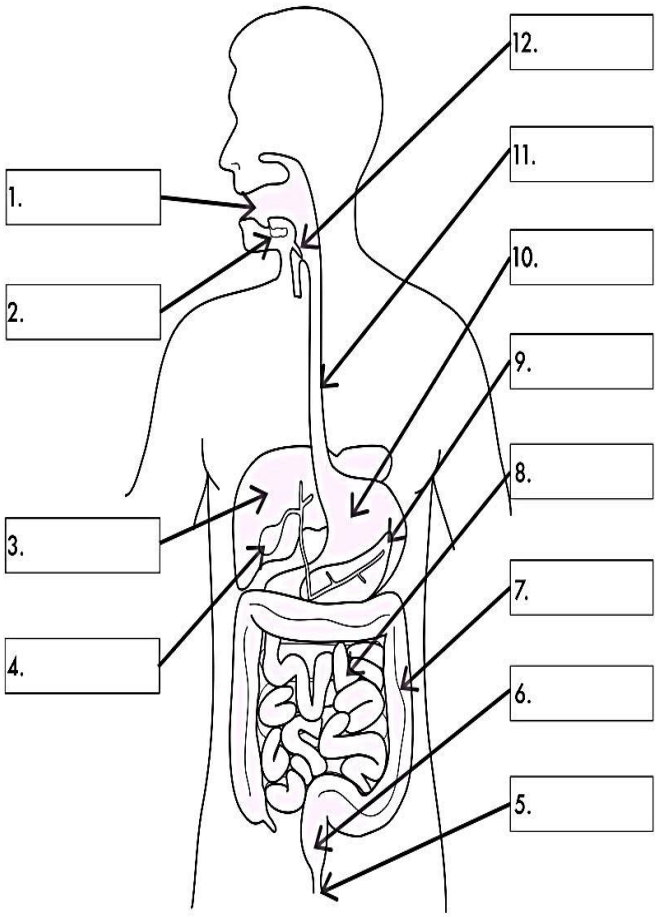
5. it provide energy for the cell by doing cellular respiration

9. it transport materials inside the cell from one place to another

11. its a gel like substance that holds the organelles in place

12. it break down waste and old cell

Activity 4 The Digestive System



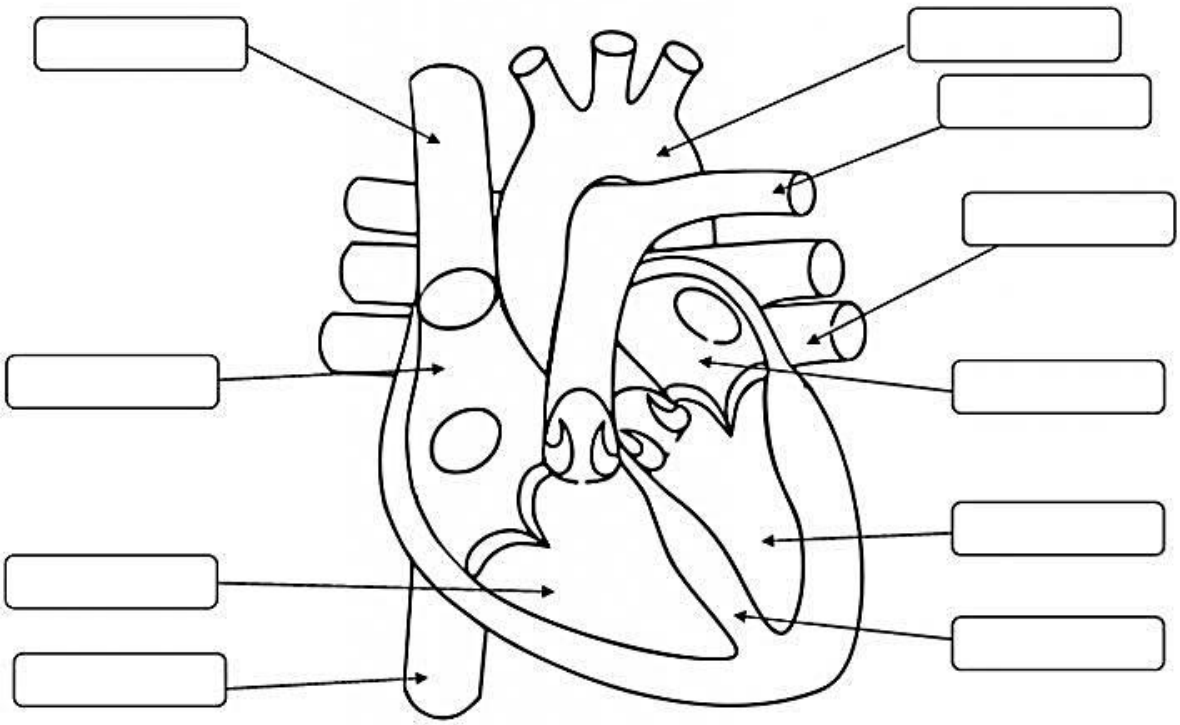
1.) Label the diagram of the digestive system with the structures given in the table to the right.

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 5 The Heart

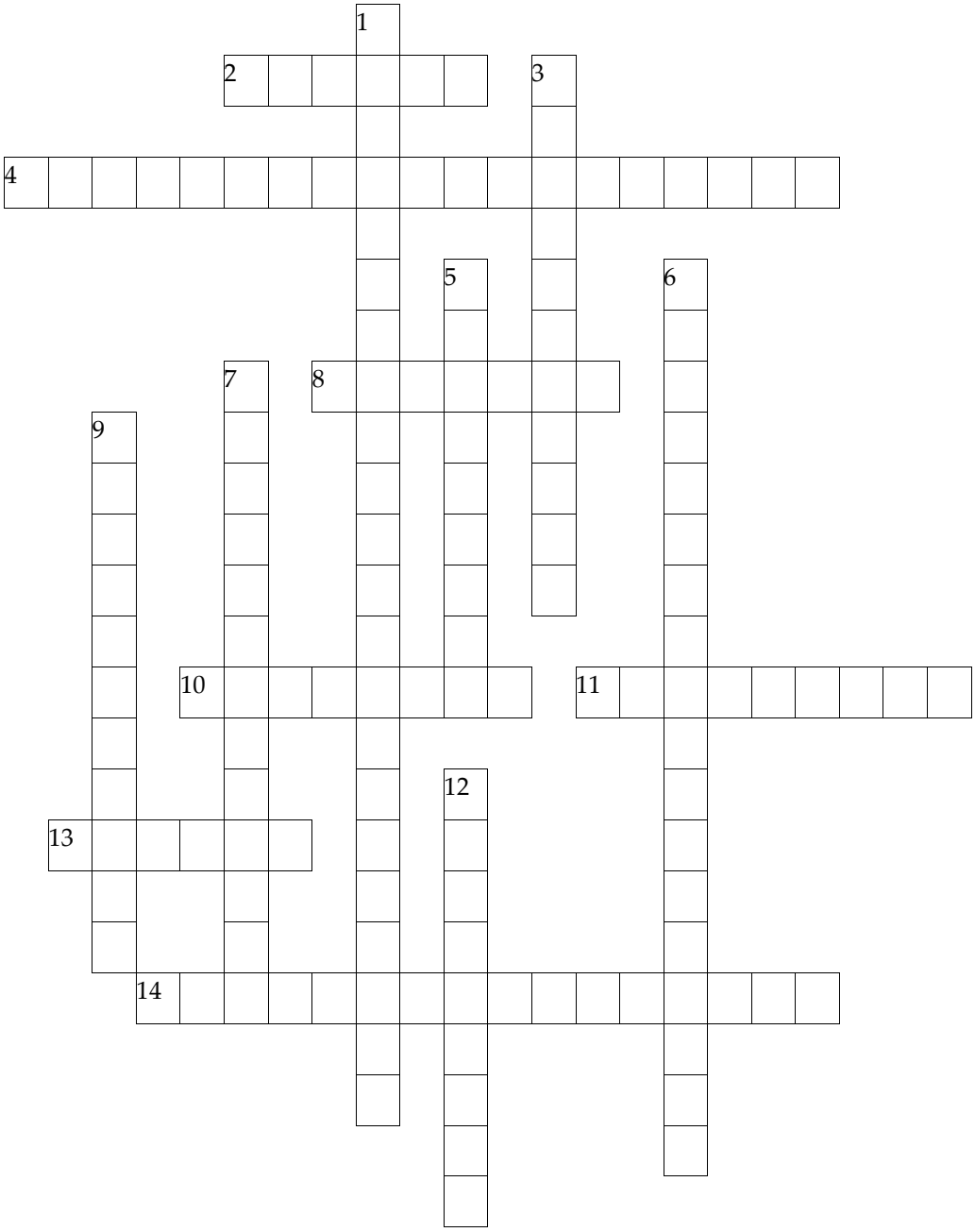
Label the identified part of the heart. Color the parts with oxygenated blood in red and deoxygenated blood in purple or deep red. When done complete the chart below with the function and oxygen level of each heart part.



	Oxygenated/ Deoxygenated Blood	Function
Vena cava		
Aorta		
Pulmonary Artery		
Pulmonary Vein		
Right Atrium		
Right Ventricle		
Left Atrium		

9. Computer

Task 1: Research the basic history and types of computers from any available resource. Read the question below and solve the crossword accordingly.



Across

2. Which computers are used in robotics and medical labs?

4. What defines format to write instructions for computer in a specified format?

8. Which computers process data in numerical form?

10. Which programming language requires detailed knowledge of hardware to be used?

Down

1. What is the basis of fifth generation computers?

3. _____ is used to convert high level programming language to machine code.

5. What was the largest type of computer?

6. What was the major invention in third generation computers?

11. The commands of assembly language are known as _____

13. What is the name of first devices made in history of computers?

14. What is an alternative name of microcomputer?

7. Which type of computer is considered as most powerful computer?

9. Which technology was used in first generation computers?

12. _____ programming languages are close to human language.

Components of Computer

Task 2: Research the components of desktop computers you are using at your home and based on your observation and usage, label the external components of computer accordingly. Make a brief description about their type and functioning in the chart given below.

Name of Component	Type	Function
Monitor		
CD Rom		
Headset		
Printer		
Scanner		
Speaker		
Tower		
Mouse		

Computer Keyboard

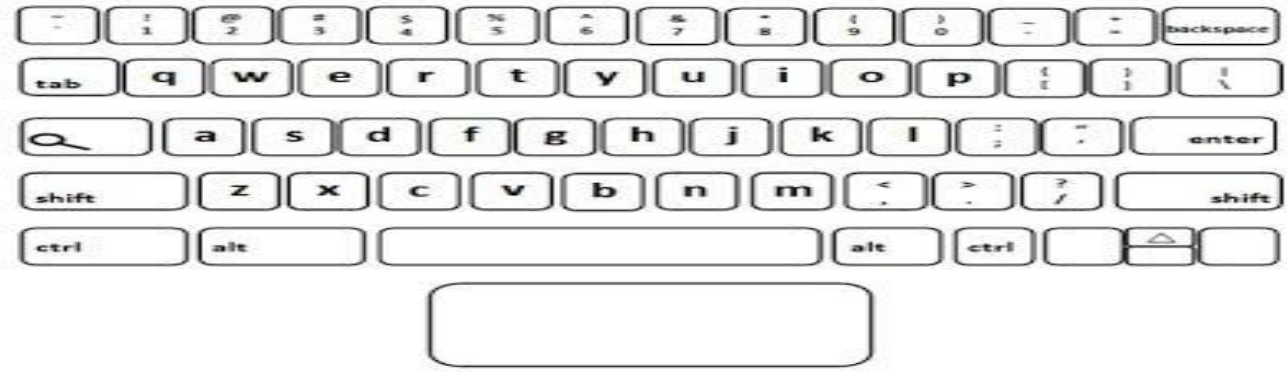
Task 3: Observe your keyboard and the function of different keys. Sort the keys according to their functions in various types and solve the below given activity based on your experience.

Color the following:

Alphanumeric Keys: Blue Tab keys: Green Shift Keys: Yellow

Enter Key: Pink Spacebar Key: Red CapsLock Key: Brown

Backspace Key: Purple Alt Key: Orange Ctrl Keys: Grey



Fill the spaces given below with the right label of keys mentioned above.

1. _____ It is used to type text and special characters as well as numbers.
2. _____ It is used to advance the cursor to the next tab stop.
3. _____ A modifier key on a keyboard is used to type capital letters and other alternate "upper" characters.
4. _____ Key that is pressed to signal the computer to input the line of data or the command that has just been typed.
5. _____ Key that is used to conveniently enter a space, e.g. between words during typing.
6. _____ Toggle key that causes all letters of Latin and Cyrillic based scripts to be generated in capital letters.
7. _____ It moves the display cursor one position backwards, deletes the character at that position, and shifts back the text after that position by one position.
8. _____ A key used to change (alternate) the function of other pressed keys.
9. _____ a modifier key which, when pressed in conjunction with another key, performs a special operation.

Computer Organization

Task 4: Read the information given below carefully and complete the task mentioned below. You can take help from any resource even your personal experience based on how computer works for you.

A computer performs following five major functions:

1. Accepts data and instructions from input devices.
2. Stores data in storage device (Internal/External)
3. Process data as required by user.
4. Gives result in the form of output.
5. Controls all operations in the computer.

In order to perform above mentioned operations, the computer system is divided into three units. These are:

1. Central Processing Unit
2. Input Unit
3. Output Unit

Task: Collect the information about the working of above mentioned units and represent the organization of computer in the form of a block diagram.

Computer Software

Task 5: Read the information given below carefully and complete the stated task.

Computer Software: Computer software is a term used for organized collection of computer data and instruction given to computer to solve a particular problem. It is also referred as computer program.

Types of Computer Software: There are two major types of computer software:

System Software: Refers to the program that is responsible for controlling and managing actual operations of the computer hardware. It is responsible for basic operations of computer and fundamental utilities such as disk formatter etc.

Application Software: Used to accomplish tasks specified by the user to fulfill their own requirement such as image viewer that is used to view the pictures/images.

Task 6: Based on the information given above search the basic system software in your computer and the major three application software under your use. State their function in one line.

Questions:

1. Why do computers have fans in them? And how does the fan work?
2. What is software and what is the difference between an operating system and an application?
3. What are pixels and how are they used to make pictures and videos on a computer's monitor?

4. What is cyber-bullying? Why do you think people post humiliating/cruel/nasty/false information about other people on public websites like Youtube and social media such as Facebook? How does cyber-bullying affect the target/victim?
5. Write an essay that describes 3 ways in which computers have made people's lives better – and 3 ways in which people's lives have been made worse by computers.
6. Are computer games good or bad? Explain your answer with at least 3 arguments for and 3 arguments against.
7. Why are the letters on the keyboard laid out in such a strange pattern? And why is the space bar so large? Are keyboards the same in all countries? China? Germany?
8. How can you know if something you see or read on a website is true or not?
9. Would you feel safe traveling in a car that was being driven by a computer and not a person? Why/why not?
10. Describe what happens to all the elements that make up a computer when a computer is 'thrown away'.
11. What do you think will be the next really big, new thing with technology? Time travel? 3-D printing of food? A computer that asks you questions when you are sick, measures your blood pressure and heart rate, tests your blood… and then 3-D prints a pill to make you feel better? Robots to do your homework.
12. Roald Dahl wrote a short story about a computer that wrote books. Do you think computers can write books/stories or create art? Why/why not?
13. If you traveled back in time to when you grandparents were at school, and you tried to explain to someone what a computer is, what would you say – and what questions do you think they would ask you about computers?

10. 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

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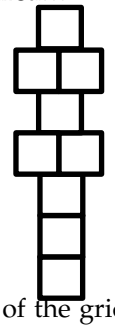
11. Sports

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.

12. 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.

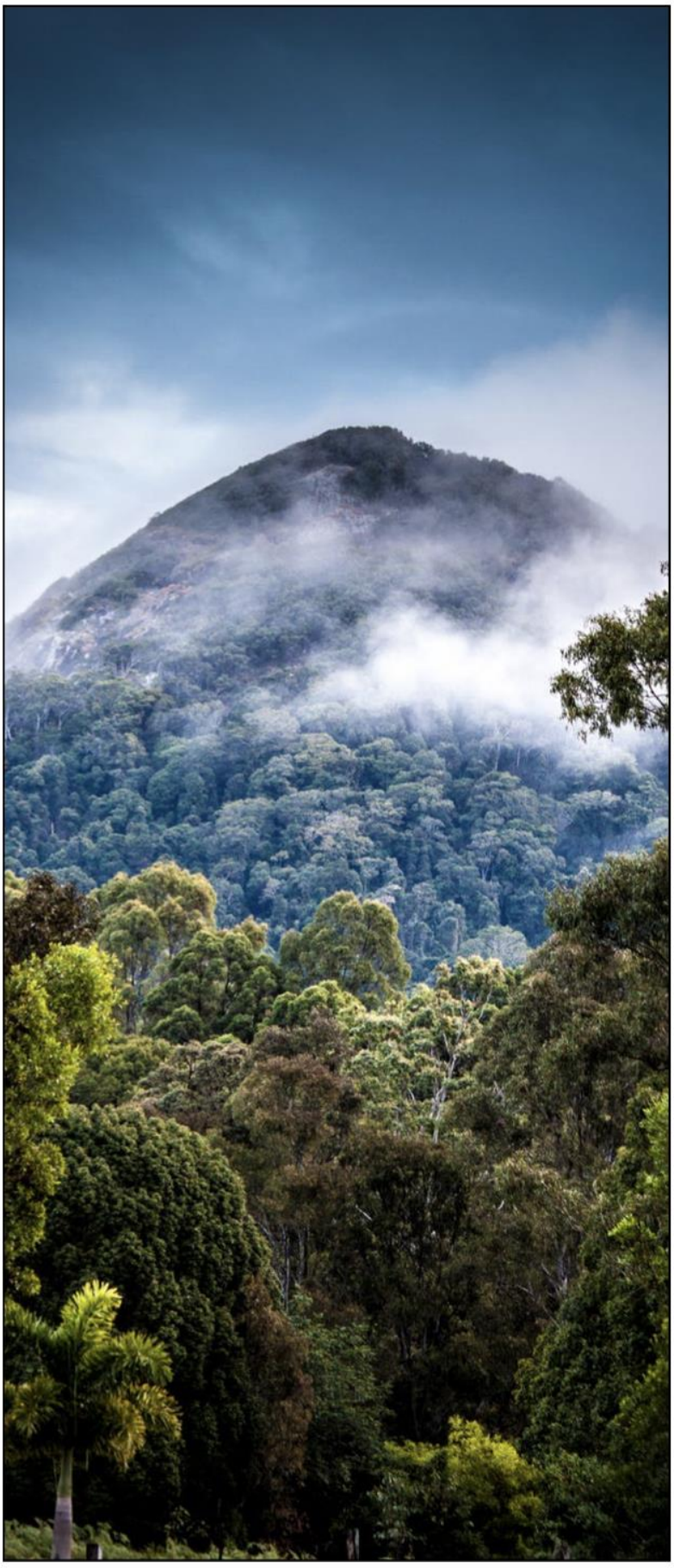
7. Critical thinking: Describe how might you check this article to be sure it is accurate.

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.

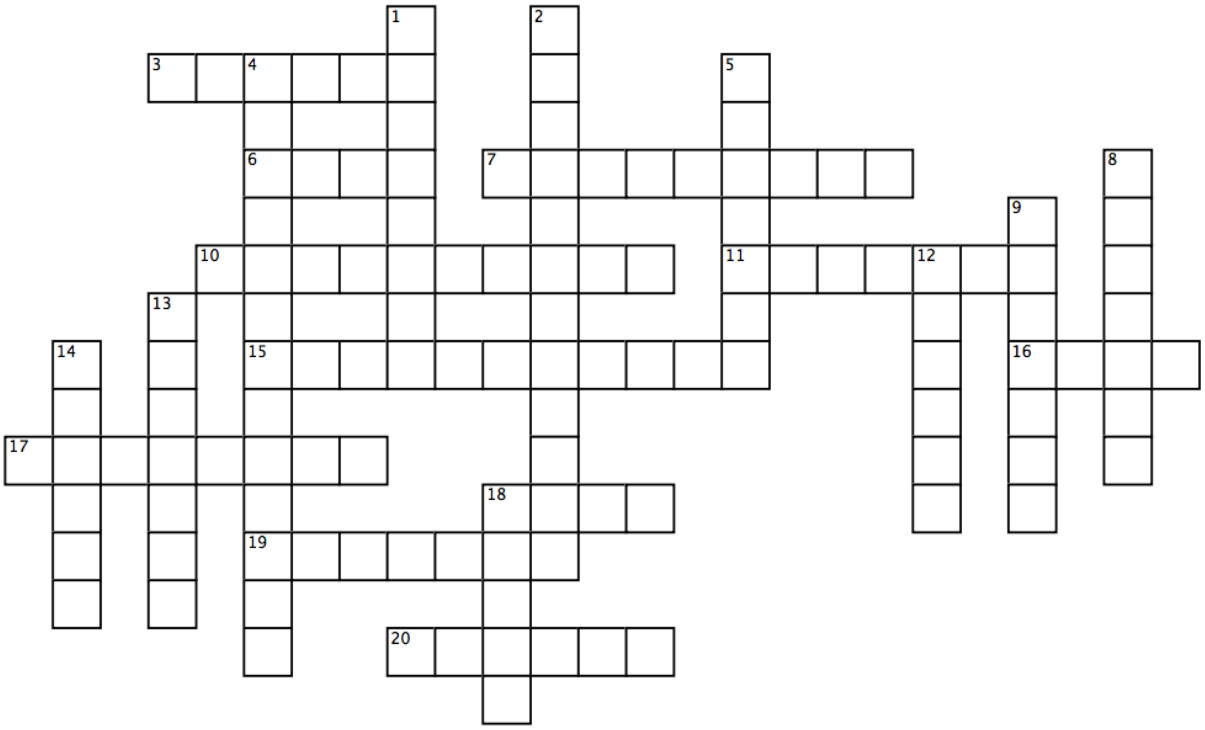
What can I do?

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.



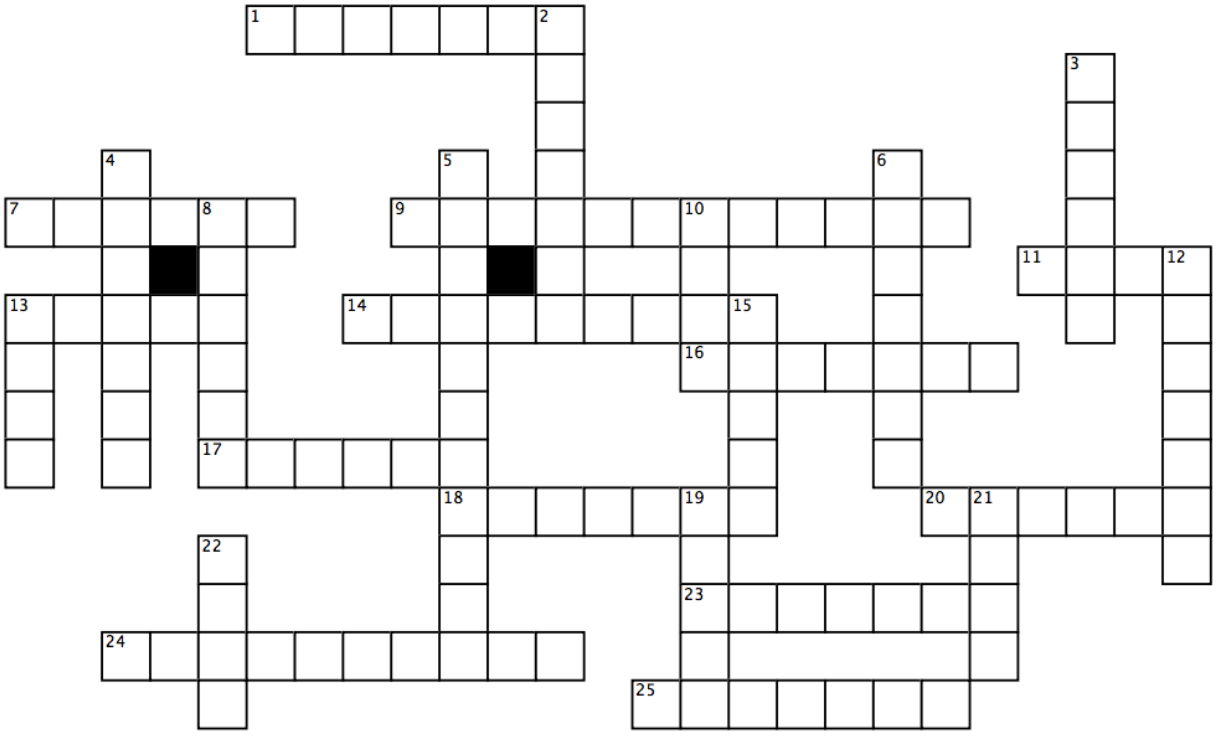
Across

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



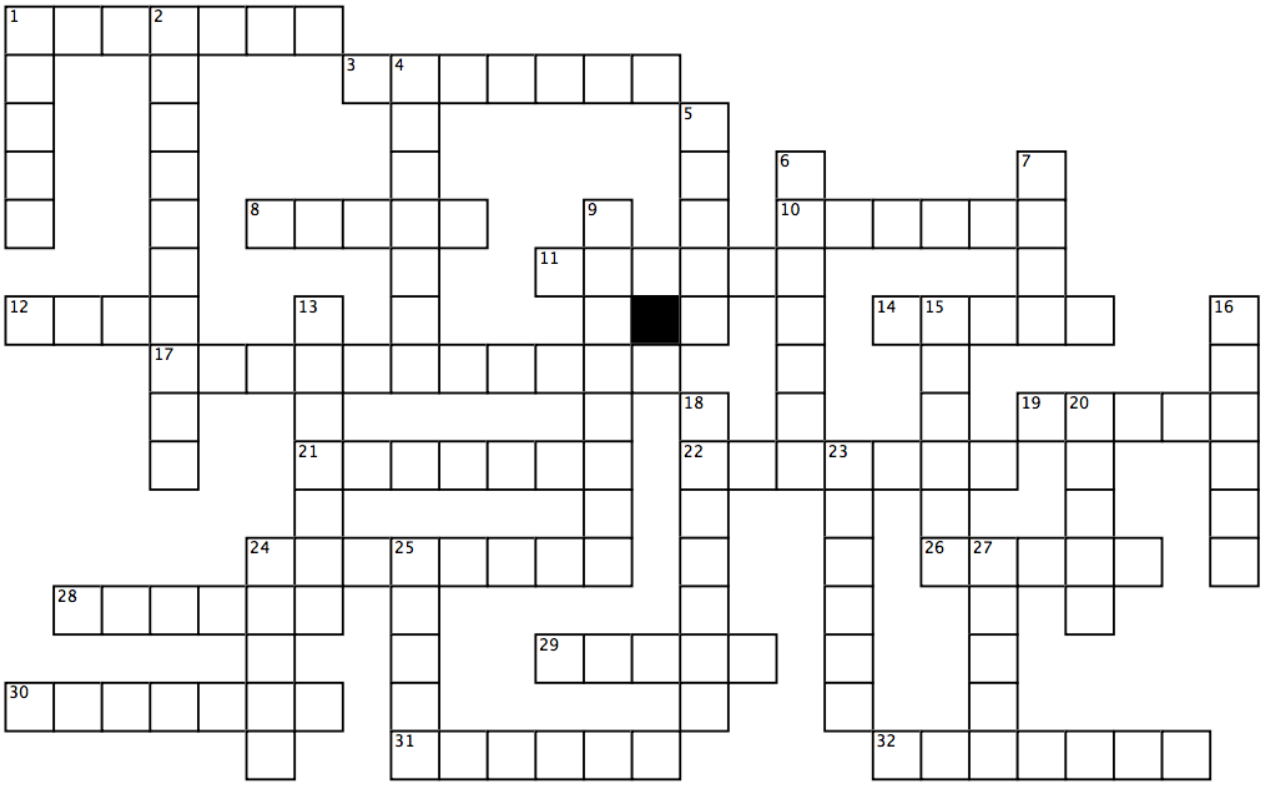
Across

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 _____.