Sadiq Public School

Distance Learning
for S3

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

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

Write an essay on each one of the following topics. (300-350 words)

1. Observe something that occurs naturally – perhaps clouds moving across the sky, perhaps eagles, a cat, the sunrise, the moon and write about how this natural phenomenon affects you and your emotions.
2. Write a fictional story with a moral (message) and the characters will be a mongoose, an eagle, and a squirrel.
3. 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?
4. 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…

Reading

1. Read a novel and write a book review. To what sort of people/readers would you recommend the book?
2. Write a synopsis (i.e. a plot outline)
3. Write a one page summary of the book's plot, characters, theme, and setting.

Use the following pairs of words in sentences of your own

Affect, Effect	Cloth, Clothes
Advise, Advice	Sail, Sale
Altar, Alter	Compare, Contrast
Altogether, All together	Device, Devise
Angel, Angle	Denied, Refused
Bail, Bale	diary, dairy
Bear, Bare	Due, Dew
Birth, Berth	Die, Dye
Beside, Besides	Dose, doze
Brake, Break	Drop, Droop
Cool, Cold	elder, Older
Eligible, illegible	except, accept
Expect, hope	feet, feat
Flour, flower	fair, fare
There, Their	desert, dessert
Compliment, Complement	

2. Urdu Language

1۔موجودہ حالات میں بے روز گار ہونے والے افراد اور ان کے خاندانوں کے مسائل پر ایک تفصیلی مضمون تحریر کریں۔

2۔بچوں کے رسالے کے مدیر (ایڈیٹر) کے نام خط لکھ کر انہیں آگاہ کریں کہ ان کے رسالے کی تحریروں میں کیا کیا خوبیاں اور کیا کیا خامیاں پائی جاتی ہیں؟

3۔لاک ڈاؤن کے دوران آپ نے متعدد ٹی وی سیریل دیکھے ہوں گے۔اپنے پسندیدہ ٹی وی سیریل کا خلاصہ تحریر کریں اور اس کی پسندیدگی کی وجہ بھی تحریر کریں۔

4۔ان چھٹیوں کے دوران آپ نے جن کتابوں کا مطالعہ کیا ہے،ان میں سے کوئی سی تین کتابوں پر تبصرہ تحریر کریں۔

5۔اردو کے پانچ اہم نثر نگاروں کے حالات زندگی اور ان کے کلام کے بارے میں مختصر نوٹ تحریر کریں۔

6۔مختلف اخبارات میں شائع ہونے والے اردو آرٹیکلز میں سے کوئی سے تین آرٹیکلز کا خلاصہ اپنے الفاظ میں تحریر کریں۔

7۔پاکستان میں سیلاب کی تباہ کاریوں کے حوالے سے ایک تفصیلی مضمون تحریر کریں۔

8۔اپنی زندگی کا ناقابل فراموش واقعہ تحریر کریں جس سے یہ واضح ہونا چاہیے کہ آپ اس کو اب تک کیوں نہیں بھلا سکے۔

9۔ آپ کو کون سا کھیل پسند ہے؟اس کھیل کی تفصیلات،طریقہ کار،اصول وضوابط ایک مضمون کی صورت میں تحریر کریں۔

10۔ آپ جنوں، پریوں اور توہمات پر کس حد تک یقین رکھتے ہیں؟ ہمارے دیہاتوں میں اس بارے میں کیا صورت حال ہے؟ تفصیل سے بیان کریں۔ اپنے موقف کے حق میں دلائل دیں۔

3. Mathematics

Q. 1. Identify the quadratic equations from the following:

1. $4x^2 + 4x + 9 = 0$
2. $2x^2 + 3x = 0$

3. $4x + 7 = 0$
4. $7x^2 - 2 = 0$

5. $5x^2 + 6x + 1 = 0$
6. $4x^2 + 5x = 8$

7. $-2x + \frac{7}{8} = 0$
8. $6x^2 + 4 + 4x = 0$

Q2. Solve the following

1. $\frac{x}{x+1} + \frac{x+1}{x} = 6$
2. $(x + 7)(x - 3) = -7$
3. $4 - 32x = 17x^2$
4. $-x^2 + \frac{15}{2} = \frac{7}{2}x$

Pure Quadratic Equation: If b=0 in quadratic equation $ax^2 + bx + c = 0$, then $ax^2 + c = 0$ is called pure quadratic equation. Some examples are $5x^2 + 7 = 0$ and $7x^2 - 2 = 0$

Methods to solve Quadratic Equations:

There are **three** methods to solve a quadratic equation.

1. **Solution by Factorization:** In this method ,given quadratic equation is written in standard form $ax^2 + bx + c = 0$ ----**(A)** and then two real numbers **m** and **n** are found such that (i) m+n = b (ii) m*n = ac in (A) . In this way given quadratic equation $ax^2 + bx + c = 0$ will be factorized into two linear factors which will be solved for x separately.

Q3. Solve the following

1. $x^2 - x - 20 = 0$
2. $3y^2 = y(y - 5)$
3. $4 - 32x = 17x^2$

2. Solution by Completing Square Method: The procedure is as follows.

1. Write the given equation in standard form $ax^2 + bx + c = 0$ **if not**
2. Shift the constant to the right side.
3. Make the co efficient of x^2 **one** if already not by dividing by co efficient of x^2 to every term of equation on both sides.

4. Add the square of $(\frac{1}{2} \times \boldsymbol{coefficient\ of\ x})$ on both sides of equation**.**

5. Write both sides of equation in complete square form and simplify on right side.

6. Take square root on both sides and simplify it.

3. **Solution by Quadratic Formula:**   The solution of quadratic equation $\boldsymbol{ax^2 + bx + c = 0}$ by completing square method is known as Quadratic formula.

The quadratic formula is $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Q4. Solve using Quadratic Formula,

1. $\boldsymbol{5x^2 + 8x + 1 = 0}$

2. $\boldsymbol{6x^2 - 3 - 7x = 0}$

3. $\boldsymbol{2 - x^2 = 7x}$

4. $\boldsymbol{\sqrt{3}x^2 + x = 4\sqrt{3}}$

5. $\boldsymbol{4x^2 - 14 = 3x}$

6. $\boldsymbol{3x^2 + 8x + 2 = 0}$

Equations reducible to Quadric Equation:

1. **The Equation of the type $\boldsymbol{ax^4 + bx^2 + c = 0}$**

    In this equation, we replace $\boldsymbol{x^2 = y}$ in the given equation, we get a new quadratic equation in y and then solve by any method.

2. **The Equation of the type $\boldsymbol{ap(x) + \frac{b}{p(x)} = c}$**

3. **Reciprocal Equation:**   An equation is said to be a reciprocal equation if it remains unchanged when $\boldsymbol{x}$ is replaced by $\frac{1}{x}$**.**

    For example $\boldsymbol{2x^4 + x^3 - 6x^2 + x + 2 = 0}$

4. **Exponential Equation:** An equation in which variable occurs in exponent is called exponential equation.

    For example $\boldsymbol{3^{2x+2} = 12 \times 3^x - 3}$

5. **Radical Equation:**   An equation involving expression under radical sign $\surd$ is called radical equation**.**

    For example $\boldsymbol{\sqrt{11 - x} - \sqrt{6 - x} = \sqrt{27 - x}}$

 Q5. Solve the following

1. $x^4 + x^3 + x^2 + x + 1 = 0$

2. $2^{2x} - 3.2^x + 5 = 0$

3. $\sqrt{11 - x} - \sqrt{6 - x} = \sqrt{27 - x}$

4. $2x^4 - 3x^3 + 7x^2 - 3x + 2 = 0$

5. $\sqrt{4a + x} - \sqrt{a - x} = \sqrt{a}$

6. $3^x - 3^{2-x} + 6 = 0$

7. $\sqrt{x + 3} = 3x - 1$ 8. $2^x + 64.2^{-x} - 20 = 0$

9. $2x^4 - 5x^3 - 14x^2 - 5x + 2 = 0$ 10. $5^{1+x} + 5^{1-x} = 26$

MCQs:

i) Standard form of quadratic equation is

   a) $bx + c = 0$, $b \neq 0$ b) $ax^2 + bx + c = 0$, $a \neq 0$

   c) $ax^2 = bx$, $a \neq 0$ c) $ax^2 = 0$ $a \neq 0$

ii) The number of terms in a standard quadratic equation $ax^2 + bx + c = 0$ is

   a)   1   b) 2   c) 3   d) 4

iii) The number of methods to solve a quadratic equation is

   a)   1   b) 2   c) 3   d) 4

iv) The quadratic formula is

   a) $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ b) $x = \dfrac{b \pm \sqrt{b^2 - 4ac}}{2a}$

   c) $x = \dfrac{-b \pm \sqrt{b^2 + 4ac}}{2a}$ d) $x = \dfrac{b \pm \sqrt{b^2 + 4ac}}{2a}$

v) Two linear factors of $x^2 - 15x + 56$ are

   a) $(x - 7)$ and $(x + 8)$ b) $(x + 7)$ and $(x - 8)$

   c) $(x - 7)$ and $(x - 8)$ d) $(x + 7)$ and $(x + 8)$

vi) An equation, which remains unchanged when x is replaced by $\dfrac{1}{x}$ is called a/an

   a) Exponential equation   b) Reciprocal equation

   c) Radical equation   d) None of these

vii) An equation of the type $3^x + 3^{2-x} + 6 = 0$ is a/an

   a) Exponential equation   b) Radical equation

   c) Reciprocal equation   c) None of these

viii) The solution set of equation $4x^2 - 16 = 0$ is

   a) $\{\pm 4\}$ b) $\{4\}$ c) $\{\pm 2\}$ d) ± 2

ix) An equation of the form $2x^4 - 3x^3 + 7x^2 - 3x + 2 = 0$ is called a/an

   a) Reciprocal equation   b) Radical equation

c) Exponential equation   d) None of these

Set: A collection of well - defined and distinct objects is known as Set. A set is named by capital letters A, B, C, ----------

-, X, Y, Z, while small English letters are elements of a set.

Names of methods of writing a set: There are three methods of writing a set which are

1. Descriptive Method

2. Tabular Method

3. Set Builder Notation

Some Important Sets:

- N = Set of natural numbers = $\{1,2,3,4,5,6,7,8,9, ... \}$

- W = Set of whole numbers = $\{0,1,2,3,4,5,6,7,8,9, ... \}$

- O = Set of odd numbers   = $\{1,3,5,7,9, ... \}$ (not divisible by 2)

- E = Set of even numbers   = $\{0,2,4,6,8, ... \}$ (divisible by 2)

- P = Set of Prime numbers   = $\{0,2,4,6,8, ... \}$ (divisible by itself and 1)

- Z = Set of integers = $\{0, \pm1, \pm2, \pm3, \pm4, \pm5, \pm6, ... \}$

- Q= Set of rational numbers = $\left\{x! \, x = \frac{m}{n}, where \, m, n \, \in Z , n \neq 0\right\}$

- I = $Q^{/}$= Set of irrational numbers = $\left\{x! \, x \neq \frac{m}{n}, where \, m, n \, \in Z , n \neq 0\right\}$

- R = Set of real numbers = $Q \cup Q^{/}$

Union of sets: Union of two sets A and B is the set consisting of all the elements which are either in set A or in set B or in both sets. Thus mathematically

$A \cup B = \{x! \, x \in A \, or \, x \in B \, or \, x \in both \, sets \}$

For example if $A = \{1,2,3\} , B = \{2,3,4\} ,$

then $A \cup B = \{1,2,3\} \cup \{2,3,4\} = \{1,2,3,4\}$

If $X = \{ 1,4,7,9 \} , \, Y = \{ 2,4,5,9 \} , then$ find

(i) $X \cup Y$ (ii) $X \cap Y$ (iii) $Y \cup X$ (iv) $X \cap Y$

Intersection of sets: Intersection of two sets A and B is the set consisting of all the common elements of both sets.

Thus mathematically $A \cap B = \{x! \, x \in A \, and \, x \in B \}$

For example if $A = \{1,2,3\} , B = \{2,3,4\} ,$

then $A \cap B = \{1,2,3\} \cap \{2,3,4\} = \{2,3\}$

If $X = \{ 1,4,7,9 \} , \, Y = \{ 2,4,5,9 \} , then$ find

(i) $X \cup Y$ (ii) $X \cap Y$ (iii) $Y \cup X$ (iv) $X \cap Y$

Difference of two sets: Difference of two sets A and B written as $A - B$ is the set consisting of all those elements of set A which are not present in B.

Thus mathematically $A - B = \{x! \, x \in A \text{ and } x \text{ is not in } B \}$

For example if $A = \{1,2,3\} , B = \{2,3,4\}$,

then $A - B = \{1,2,3\} - \{2,3,4\} = \{1\}$

$B - A = \{4,2,3\} - \{2,3,1\} = \{4\}$

In general $A - B \neq B - A$

Q6.   If $X = \{ 2,4,6,8 \ldots \ldots ,20 \}$, $Y = \{ 4,8,12, \ldots \ldots ,24 \}$, then find

(i) $X - Y$ (ii) $X - X$ (iii) $Y - X$ (iv) $Y - Y$

Complement of a set: If U is a universal set and A is a subset of U, then complement of A is the set of those element of U which are not present in A and is written as written as $A^{/} \text{ or } A^{C}$.

Thus mathematically $A^{C} = U - A = \{x! \, x \in U \text{ and } x \text{ is not in } A \}$

For example if $U = \{1,2,3,4,5\}$, $A = \{2,3,4\}$,

then $A^{C} = U - A = \{1,2,3,4,5\} - \{2,3,4\} = \{1,5\}$

If $U = \{ x! \, x \in N, \wedge ,3 < x \leq 25 \}$,

$X = \{ x! \, x \in P, \wedge ,8 < x < 25 \}$

$Y = \{ x! \, x \in W, \wedge ,4 \leq x \leq 17 \}$, then find value of

(i) $(X \cup Y)^{C}$ (ii) $(X \cap Y)^{C}$ (iii) $X^{C} \cap Y^{C}$ (iv) $X^{C} \cup Y^{C}$

De – Morgan's Laws: If U is a universal set, A and B are subsets of U, then

(i) $(A \cap B)^{C} = A^{C} \cup B^{C}$ (ii) $(A \cup B)^{C} = A^{C} \cap B^{C}$

(a)   If $U = \{ 1,2,3,4, \ldots \ldots ,10 \}$,

$A = \{1,3,5,7,9 \}$, $B = \{ 2,3,5,7\}$, then verify De Morgan's Laws

(i) $(A \cap B)^{C} = A^{C} \cup B^{C}$ (ii) $(A \cup B)^{C} = A^{C} \cap B^{C}$

(b)   If $U = N = \{ 1,2,3,4, \ldots \ldots , \}$,

$A = \emptyset = \{ \}$, $B = P = \{ 2,3,5,7, \ldots \ldots \}$,

Then verify De Morgan's Laws

(i) $(A \cap B)^C = A^C \cup B^C$ (ii) $(A \cup B)^C = A^C \cap B^C$

Q # 7:   If $U = \{ 1,2,3,4, \ldots\ldots, 10 \}$,

               $A = \{1,3,5,7,9\}$, $B = \{ 1,4,7,10 \}$,

               Then verify following equations

(i) $A - B = A \cap B^C$ (ii) $B - A = B \cap A^C$

(iii) $(A \cap B)^C = A^C \cup B^C$ (iv) $(A - B)^C = A^C \cup B$

Q # 8 : If $A = \{ 1,3,5,7,9 \}$, $B = \{1,4,7,10\}$, $C = \{ 1,5,8,10 \}$,

Then verify following equations

(i) $(A \cup B) \cup C = A \cup (B \cup C)$ (ii) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

Ordered Pairs: Any two numbers x and y written in the form (x, y) is called an ordered pair. In ordered pair (x, y), the order of numbers is important.

> Note that $(x, y) = (s, t)$ iff $x = s$ and $y = t$

Cartesian Product: Cartesian product of two non - empty sets A and B denoted by A X B is a set consisting of all ordered pairs (x, y) such that $x \in A$ and $y \in B$

For example $A = \{a, b\}$, $B = \{c, d\}$, then

, $A \times B = \{(a, c), (a, d), (b, c), (b, d)\}$

  $B \times A = \{(c, a), (d, a), (c, b), (d, b)\}$

              Q # 9: If $A = \{0, 2, 4\}$, $B = \{-1, 3\}$

              Then find $A \times B$, $A \times A$, $B \times B$, $B \times A$

                  Q # 10: If $X = \{a, b, c\}$, $B = \{d, e\}$

              Then find $X \times Y$, $X \times X$, $Y \times Y$, $Y \times X$

                  Q # 11: If $X \times Y = \{(a, a), (b, a), (c, a), (d, a)\}$

              Then find   the sets X and Y

                Q # 12: Find a and b if

(i) $(a - 4, b - 2) = (2,1)$ (ii) $(2a + 5, 3) = (7, b - 4)$

 (ii) $(3 - 2a, b - 1) = (a - 7, 2b + 5)$

4. Islamiat

1۔ غزوہ احزاب کے بارے میں مختصر نوٹ لکھیں۔

2۔ نماز کے معاشرے کے لیے کیا فوائد ہیں؟

3۔ تلاوتِ قرآن کی اہمیت بیان کریں۔

4۔ Covid-19 کے دوران آپ حدیث نبوی صلی اللہ علیہ وسلم کے مطابق کس طرح وقت گزار رہے ہیں؟۔ تحریر کریں۔

5۔ اسلام میں ماں کا کیا مقام ہے؟ اس کے بارے میں لکھیں۔

6۔ نماز جمعہ کا طریقہ بتائیں۔

7۔ اپنی زندگی سے سخاوت کا کوئی واقعہ بیان کریں۔

8۔ زکوۃ کن لوگوں کو دینی چاہیے اور کن کو نہیں دینی چاہیے؟

9۔ سچ بولنے کے کیا فائدے ہیں؟ کوئی سے دس فائدے لکھیں۔

10۔ وضو کا طریقہ لکھیں۔

11۔ صفائی کی اہمیت کیا ہے؟ کرونا وائرس کے دوران اس کی اہمیت بیان کریں۔

12۔ نماز کے اوقات سے متعلق ایک چارٹ بنائیں۔

13۔ رسول صلی اللہ علیہ وسلم کے زندگی سے عفو و درگزر کا کوئی واقعہ بیان کریں۔

14۔ انسانی زندگی پر عقیدہ آخرت کے کیا اثرات ہو سکتے ہیں؟

15۔ کوئی سے چار مقدس فرشتوں کے نام اور ان کے کام لکھیں۔ و

16۔ اسلامی معاشرے میں ہمیں ایک دوسرے کے ساتھ کس طرح پیش آنا چاہیے؟ اپنی زندگی سے متعلق کوئی   واقعہ لکھیں۔

17۔ ایک اچھے طالب علم میں کون سی خصوصیات ہونی چاہیں؟

18۔ عید قربان کے موقع پر ہمیں غریب لوگوں کی کس طرح مدد کرنی چاہیے؟

19۔ جھوٹ بولنے کے کیا نقصانات ہیں؟ اس کا ایک چارٹ بنائیں۔

20۔ حصول علم سے متعلق اللہ اور اس کے رسول صلی اللہ علیہ وسلم کی تعلیمات کیا ہیں؟

5. Pakistan Studies

1. Why do we study history?

2. How can we ever be sure that historical events are recorded accurately?

3. Make a list of reasons why early civilizations began in river valleys.

4. Why are there fragments of shells in the Cholistan Desert?

5. Which famous Greek philosopher tutored Alexander the Great?

6. The Silk Road was started in which dynasty.

7. During the second crusade, which city did Saladin recapture?

8. Civilization in Mesopotamia developed between which two rivers?

9. Write the distribution of water on the Earth.

10. Draw a world map (with pencil & paper).

11. 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?

12. What did you put in the centre of your world map? Why?

13. What are the main differences between a globe and a map?

14. Why do we need to realize that our Earth is fragile?

15. The Earth's surface is made up of plates. What does this mean/ can you explain this?

16. What causes earthquakes? What evidence is there to support your answer?

17. Explain the big bang theory? Do you believe it? Why? Why not?

18. 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…

19. Can you explain the lines of longitude and how they relate to time zones around the world?

20. What causes global warming and how does that cause climate change?

1st week
1. Explain the main aspects of the economic reforms during 1971-77.
2. Discuss impact of nationalization on industry, education, commerce and trade.

2nd week
1. Identify the key aspects of 1973 constitution.
2. Comprehend the major aspects of the Islamization process during 1977-88.

3rd week
1. Explain the functioning of the Junejo government (1985-1988).
2. Analyze the Afghan jihad and the refugee problem and their impact on Pakistani society.

4th week
1. Discuss the functioning of Benazir government.
2. Discuss the functioning of Nawaz government.

5th week
1. Discuss Pakistan's emergence as a nuclear power.
2. Comprehend the causes of military take-over of 12th October 1999.

6th week
1. Discuss the 2002 elections and restoration of democracy.
2. Define enlightened moderation (Pervez Musharraf era).

6. Physics

Introduction: Ancient wave theories

Much of our current understanding of wave motion has come from the study of acoustics. Ancient Greek philosophers, many of whom were interested in music, hypothesized that there was a connection between <u>waves</u> and sound, and that vibrations, or disturbances, must be responsible for sounds. <u>Pythagoras</u> observed in 550 <u>BCE</u> that vibrating strings produced sound, and worked to determine the mathematical relationships between the lengths of strings that made harmonious tones.

Scientific <u>theories</u> of wave propagation became more prominent in the 17th Century <u>CE</u>, when <u>Galileo Galilei</u> (1564-1642) published a clear statement of the connection between vibrating bodies and the sounds they produce. <u>Robert Boyle</u>, in a classic <u>experiment</u> from 1660, proved that sound cannot travel through a vacuum. <u>Isaac Newton</u> published a mathematical description of how sound travels in his work *Principia* (1686). In the 18th Century, French mathematician and scientist Jean Le Rond d'Alembert derived the wave equation, a thorough and general mathematical description of <u>waves</u>, which laid the foundation for generations of scientists to study and describe wave phenomena.

V=fλ

A' = Maximum Amplitude
λ = wavelength
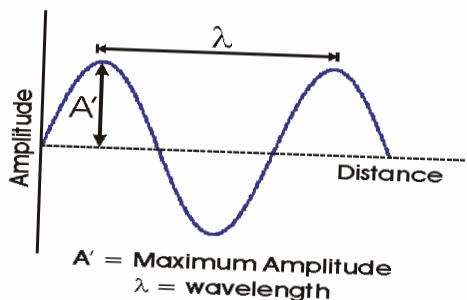
Our understanding of wave motion began with the study of

- sound.

- vacuums.

Wave basics

Waves can take many forms, but there are two fundamental types of <u>waves:</u> "longitudinal" and "transverse" (see Figures 1 and 2). Both of these wave types are traveling disturbances, but they are different because of the way that they travel. As a wave travels through a medium, the <u>particles</u> that make up the medium are disturbed from their resting, or "equilibrium" positions. In a longitudinal wave, the particles are disturbed in a direction parallel to the direction that the wave propagates. A longitudinal wave consists of "compressions" and "rarefactions" where particles are bunched together and spread out, respectively (see Figure 1). For another view of this type of wave, take a look at the longitudinal wave video clip below. In a transverse wave, the particles are disturbed in a direction perpendicular to the direction that the wave propagates. The transverse wave video clip below provides a dynamic visualization of

this type of wave. After either type of wave passes through a medium, the particles return to their equilibrium positions. Thus, waves travel through a medium with no net displacement of the particles in the medium.

Figure 1: A longitudinal wave, made up of compressions – areas where particles are close together – and rarefactions – areas where particles are spread out. The particles move in a direction that is parallel to the direction of wave propagation.
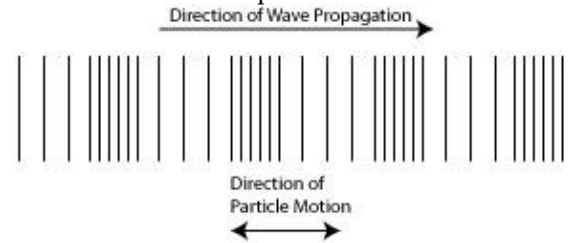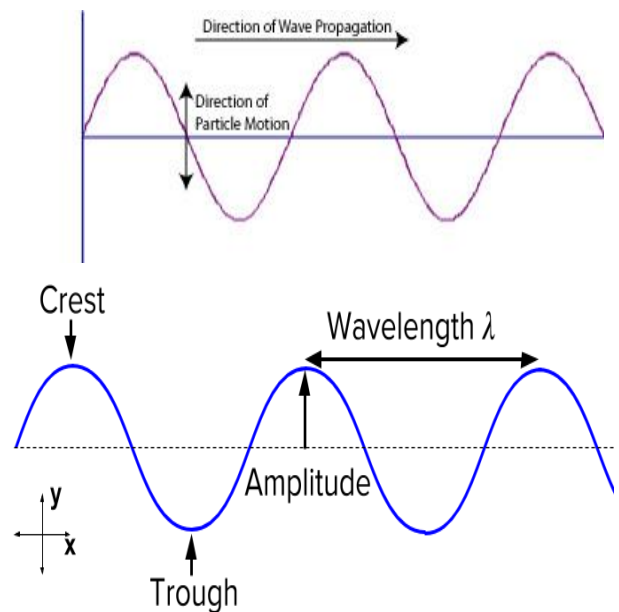
Illustration of a longitudinal wave

Figure 2: A transverse wave. The particles move in a direction that is perpendicular to the direction of wave propagation.

Illustration of a transverse wave.

New terms:

- Amplitude
- Wavelength
- Frequency
- Crest
- Trough
- Compression
- Rarefaction
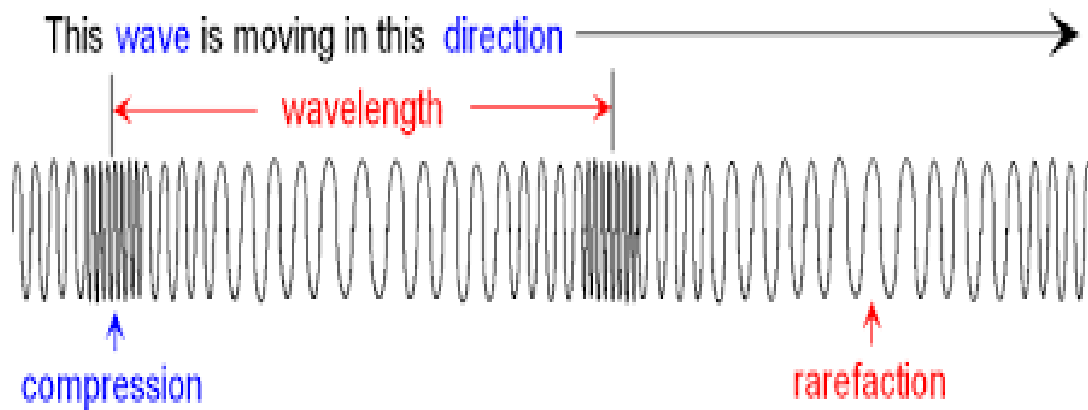
Ripple tank:
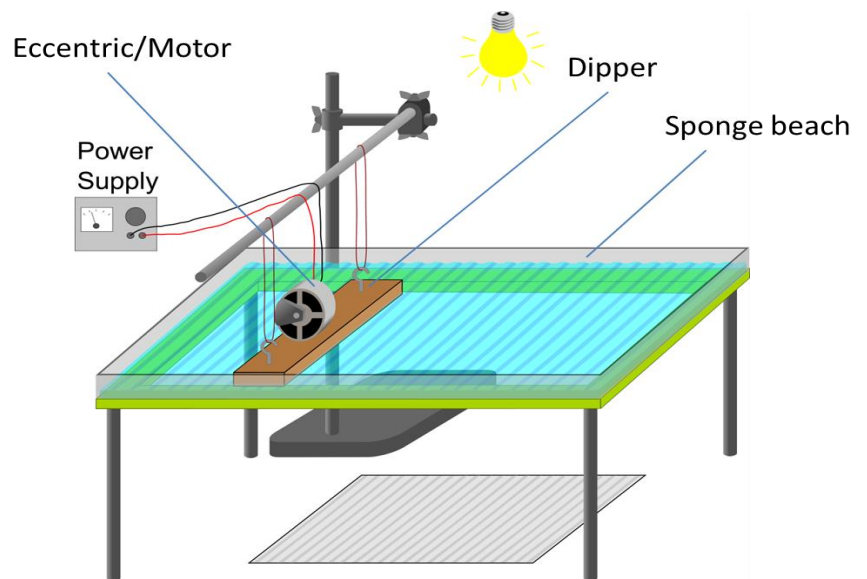
The ripple tank is used to generate water waves in laboratory. It is useful in demonstrating wave properties such as reflection and refraction. It consists of a shallow tray of water with a transparent base, a light source directly above the tray and a white screen beneath the tray to capture the image of the shadows formed when water waves spread across the tank as shown above. Straight waves can be set up by using a straight dipper, while circular waves can be formed by using a spherical dipper. Both dipper are vibrated up and down by a motor.

The waves will be seen in bright and dark patches on the screen below the tray. These patches show the position of the crests and troughs of the waves. The dark patches will correspond to the crests and bright patches will be the troughs.

New concepts

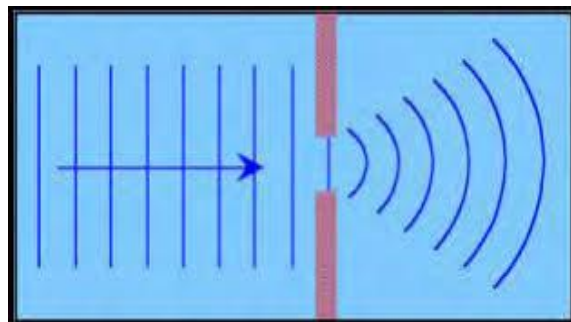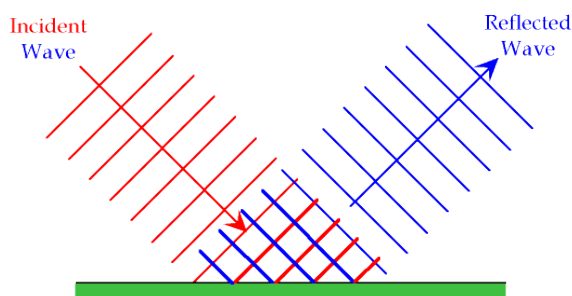- Reflection
- Refraction
- Diffraction
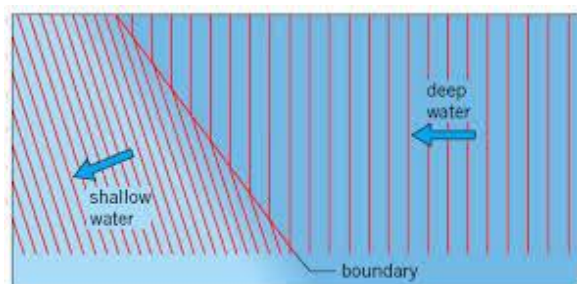
Figure 14.10 Ripple tank pattern showing refraction

Q#1: Multiple choice questions

1. In a vacuum, all Electromagnetic waves have the same(2018)			
A. Speed	B. Frequency	C. Amplitude	D. Wavelength
2. Which is an example of longitudinal waves (2017)			
A. Sound waves	B. Radio Waves	C. Light Waves	D. Water Waves
3. Which of the following is a method of Energy transfer:(2017)			
A. Conduction	B. Radiation	C. Wave motion	D. All these
4. Which is the method of energy transfer (2016)			
A. Sound waves	B. Radio Waves	C. Light Waves	D. Water Waves
5. The main types of waves are: (2016)			
A. 2	B. 3	C. 4	D. 1

Q#2: Read these concepts define new concepts.

Q#3: What is ripple tank? What are its uses?

Q#4: Uses this formula solve these questions

V=f λ

Variables, units, and symbols:

Quantity Symbol	Quantity Term	Unit	Unit Symbol
v	wave speed	meters/second	m/s
λ	wavelength	meter	m
f	frequency	Hertz	Hz

1. A wave with a frequency of 14 Hz has a wavelength of 3 meters. At what speed will this wave travel?

2. The speed of a wave is 65 m/sec. If the wavelength of the wave is 0.8 meters, what is the frequency of the wave?

19

3. A wave has a frequency of 46 Hz and a wavelength of 1.7 meters. What is the speed of this wave?

4. A wave traveling at 230 m/sec has a wavelength of 2.1 meters. What is the frequency of this wave?

5. A wave with a frequency of 500 Hz is traveling at a speed of 200 m/s. What is the wavelength?

6. A wave has a frequency of 540 Hz and is traveling at 340 m/s. What is its wavelength?

7. A wave has a wavelength of 125 meters is moving at a speed of 20 m/s. What is it's frequency?

8. A wave has a frequency of 900 Hz and a wavelength of 200 m. At what speed is this wave traveling?

9. A wave has a wavelength of 0.5 meters and a frequency of 120 Hz. What is the wave's speed?

10. Radio waves travel at a speed of 300,000,000 m/s. WFNX broadcasts radio waves at a frequency of 101,700,000 Hertz.

 Activity:
  Make a model of ripple tank. Write down the working and principle of its components.
  Do activity at home to produce waves and make a picture of your activity.

Sound Waves

Introduction

The sensation felt by our ears is called **sound.** It is a form of energy which makes us hear. We hear several sounds around us in our everyday life. We know that *sound travels in the form of wave*.

A wave is a vibratory disturbance in a medium which carries energy from one point to another without there being a direct contact between the two points. We can say that a wave is produced by the vibrations of the particles of the medium through which it passes.

- Sound has mechanical nature that why it travel through the medium.
- Sound is the type of longitudinal wave.

Speed of sound

Speed of sound also calculated by V=f λ

Characteristics of sound

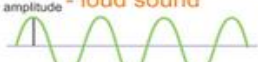The characteristics of sound are as follows:

- Pitch
- Loudness
- Quality

Speed of sound in solid, liquid, gas

Medim	Speed in m/s
Air (gas)	300
Water (liquid)	1500
Iron (solid)	5000

Speed of sound changes with changes in temperature or humidity

Change in	Explanation
Temperature	Sound travels faster when temperature rises
Humidity	Sound travels faster when humidity increases
Pressure	A change in pressure does not affect speed of sound

Loudness

It distinguishes between **loud and feeble** sound.

It mainly depends upon the **amplitude of sound**. Other factors are the area of the vibrating body and distance of the listener from source of sound.

High amplitude - loud sound

amplitude

Low amplitude - feeble sound

amplitude

Pitch

It distinguishes between **shriller and flatter** sound.

It mainly depends upon **frequency of sound**.

High frequency - shriller sound shorter wavelength

Low frequency - flatter sound longer wavelength

Quality or Timbre

It distinguishes **one sound from other having the same loudness and pitch**.

Both the sounds have different sound effects

Sound waves of guitar

Sound waves of sitar

Q#1: Multiple-choice questions

1. For a Normal person, audible frequency range for sound wave lies between.(2018)			
A. 10 Hz-10 Khz	B. 20 Hz- 20 KHz	C. 25 Hz- 25 KHz	D. 30Hz-30KHz
2. The Speed of sound in air at 0°C is (2017)			
A. 317 ms^{-1}	B. 346ms^{-1}	C. 386ms^{-1}	D. 331ms^{-1}
3. The pitch of sound mostly depend on: (2017)			
A. Frequency	B. Period	C. Wavelength	D. Amplitude
4. The intensity level of Train siren is: (2017)			
A. 150dB	B. 130dB	C. 100dB	D. 120dB
5. The level of noise recommended in most countries over an eight hour workday is usally : (2014)			
A. 82…90dB	B. 83…90dB	C. 84…90dB	D. 85…90dB

Q#2 Write down characteristics of sound.

Q#3: What is the difference between frequency and loudness?

Q#4: Calculate the frequency of sound waves of speed 340ms-1 and wavelength 0.5m.

Q#5: on which factors speed of sound depend upon.

Activity:

- **Do the activity of reflection of sound and listen the sound.**

Reflection of Sound

Mirror or metal sheet

Cardboard tube
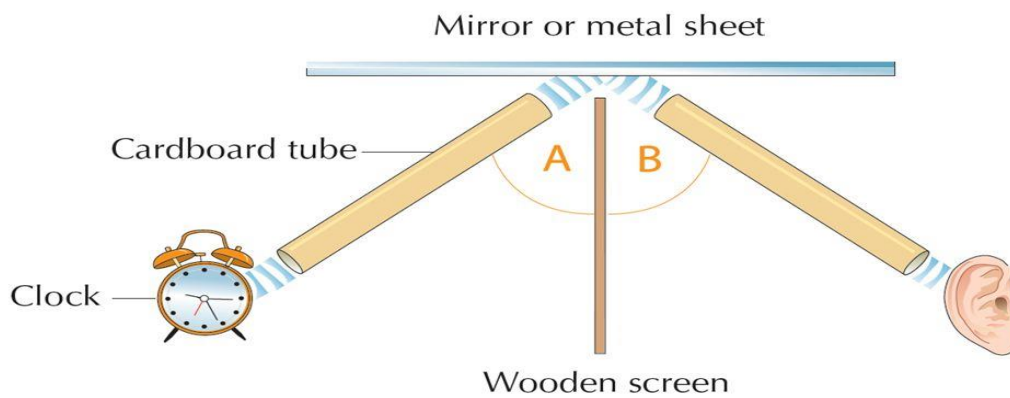
A   B

Clock

Wooden screen

Fig. 11 Sound like light, can be reflected off a hard surface.

- Do the activity of echo in empty room and listen the sound.

7. Chemistry

1. Use the terms below to match the statements below. Each word may be used once, more than once or not at all.

    Products   Forward reaction   Reactants

    Irreversible reaction   Reverse reaction

    Static equilibrium   Dynamic equilibrium

    Reversible reaction

    a. Those reactions in which products recombine to form reactants.

    b. In a chemical reaction the substances that combine.

    c. When reaction ceases to proceed.

    d. When a reaction does not stop only the rates of forward and reverse reactions become equal to each other but take place in opposite directions.

    e. Those reactions in which products do not recombine to form reactants.

    f. It is a reaction in which reactants react to form products.

    g. In a chemical reaction the new substances formed are:

    h. It is a reaction in which products react to produce reactants.

2. State the law of mass action and derive the expression for equilibrium constant for a general reaction.

3. Prove that sometimes equilibrium constant has a unit and sometimes it has no unit.

4. Make a list of some organic acids and mineral acids using in our daily life.

5. Name three common household substances having:

    (a) PH value greater than 7.

    (b)   PH value less than 7.

    (c) PH value equal to 7.

6. Give a brief comparison of three concepts of an acid and a base.

7. Learn about PH scale. How PH and POH of a solution are calculated.

8. Write the name and formula of the acid present in:

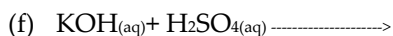   (a) Vinegar   (b) Ant-Sting   (c) Citrus fruit   (d) Sour milk   (e) Apple juice
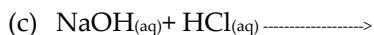
9. How is the acidic, basic and neutral nature of an aqueous solution of a compound determined using a PH scale?

   also draw it(PH scale)

10. How can you classify salts?

11. Make at least thirty MCQs using text of CH# 9,10 other than exercises.

12. Give some examples of acids, bases and salts along with their formula.

13. Complete and balance these equations.

   (a) $Zn_{(s)} + H_2SO_{4(aq)}$ ---------------->

   (b) $Al_{(s)} + HCl_{(aq)}$ ---------------->

   (c) $NaOH_{(aq)} + HCl_{(aq)}$ ---------------->

   (d) $CuO_{(aq)} + H_2SO_{4(aq)}$ ---------------->

   (e) $FeS_{(aq)} + H_2SO_{4(aq)}$ ---------------->

   (f) $KOH_{(aq)} + H_2SO_{4(aq)}$ ---------------->

14. Match these statements in column "A" with suitable answers in column "B"

A	B
Sulphuric acid is used in	Amphoteric specie
Water is an	PH less than 7
An acidic solution has	Lead storage batteries
The common name of sodium carbonate is	Called neutralization
A reaction between acid and base is	Soda ash
Sodium sulphate is a	For cleaning of metals
Hydrochloric acid is used	Neutral salt.

15. What are preservatives? Why are preservatives used in food?

Activity 1: Construct your own colorful chemistry dictionary and write five words and their meaning in it daily.

Activity 2: Salts are ionic compounds generally formed by neutralization of an acid with the base. Salts are made up of positive ions and negative ions. Positive ions are metallic ion derived from a base, while negative ion is derived from acid: Keeping this concept in your mind look carefully at the table below and complete it.

METAL	ACID	SALT NAME & FORMULA
Sodium (Na)	Hydrochloric acid (HCL)	
Potassium (K)	Nitric acid (HNO$_3$)	
Zinc (Zn)	Sulphuric acid (H$_2$SO$_4$)	
Calcium (Ca)	Phosphoric acid (H$_3$PO$_4$)	
Silver (Ag)	Acetic acid (CH$_3$COOH)	

Activity 3: Make a colorful booklet by using computer paper and write information about the following.

(i)   Ten examples of reversible and irreversible reactions each.

(ii)   How is the acidic, basic and neutral nature of an aqueous solution of a compound determined using a PH scale? Draw and label it.

Activity 4: Construct / Draw a poster about acid rain. Show how it is formed. What are causes and effects of acid rain on human life?

Activity 5: Collect information about famous scientists who had contributions in acid /base theories in your booklet. Paste their pictures and write their major achievements.

Activity 6: Using litmus paper how can you identify that the given substance is whether an acid, base or salt.

Lemon juice, Vinegar, Sodium Hydroxide, Sodium chloride, KOH, Nitric acid, Distilled water.
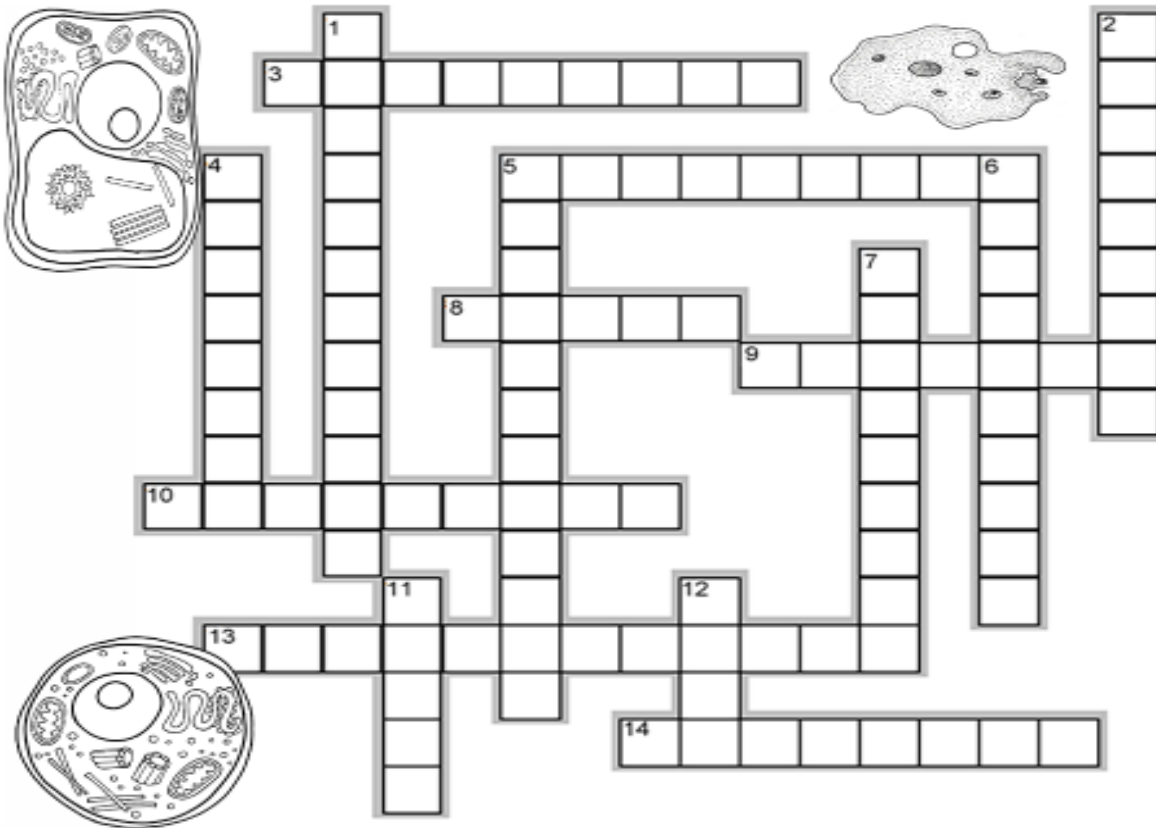
Draw a table of observation and complete it.

Substances	Effect on blue litmus	Effect on red litmus	Inference
Lemon juice			
Vinegar			
NaOH			
NaCl			
KOH			
Distilled Water			
Nitric acid			

8. Biology

Assignment 1: Solve the given word puzzle by following the given hints.

CELL STRUCTURES CROSSWORD

Across

3. makes protein
5. interior of the cell, mostly water
8. 1st person to see cells
9. stores water; large in plants
10. transport within the cell; endoplasmic ____
13. photosynthetic organelle in plants
14. tail-like structure that functions in movement

Down

1. "powerhouse" of the cell
2. organelles that break down substances
4. outer boundary of the cell
5. maintains the cell's shape
6. tool used to view cells
7. makes ribosomes
11. packaging and exporting; ____ body
12. in plants, structure outside the membrane; cell ___

Assignment 2: Solve the given questions by memorizing their concepts regarding enzymes.

1. a) Write these complete sentences, ie with the gaps filled in into your notes book.
    i)   Enzymes are biological .... that speed up chemical reactions in

        living organisms.

    ii) Enzymes are protein molecules, which are made up of long chains of .....…...……….

    iii) The sequence and type of amino acids are .... in each protein, so they produce enzymes with

        many different shapes and functions.

    iv) The shape of an enzyme is very important to its ....

    b) Enzymes catalyze chemical reactions involved in important processes in the human body. Name one of these
        processes.

        ………

    c) Label the image below with the following terms: active site, reactant, enzyme.
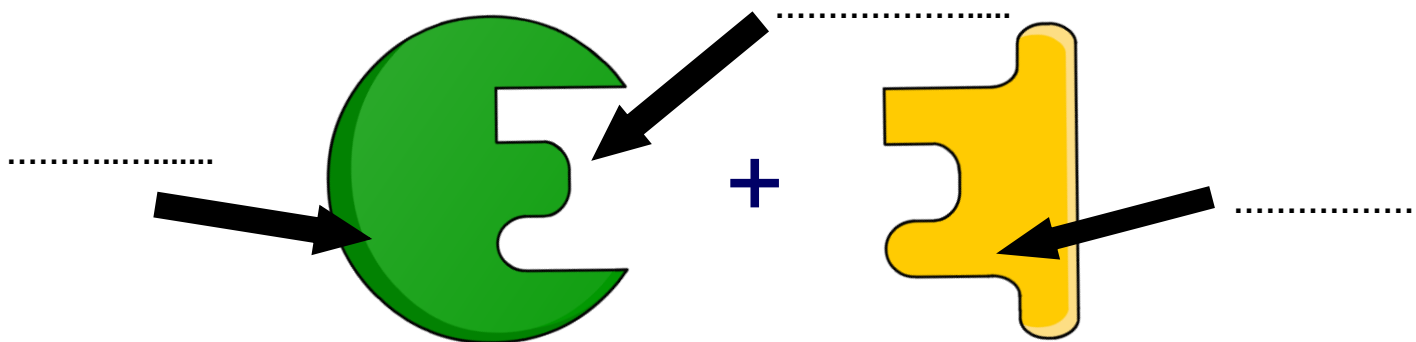
    d) i) What is the common name for the above model?

        ii) State any five characteristics of enzymes.

2. a. Explain what would happen if a reactant molecule with a different shape to the enzyme came into contact with

the enzyme's active site.

b. Explain what would happen to a reactant molecule if it came into contact with an enzyme's active site that matched

its specific shape.

Use the following terms in your answer: enzyme-reactant complex, products, enzyme, reactant, active site.

c. There are many factors that affect the rate of enzyme-catalyzed reactions, including temperature. Name two other
factors.

d. i) What would happen to an enzyme if the temperature and pH changed significantly beyond the enzyme's
optimum level?

ii) How would this affect enzyme activity?

3. A group of students decided to carry out an investigation to find out how enzyme activity is affected by temperature changes. They put samples of salivary amylase and starch into two test tubes. Salivary amylase is an enzyme that breaks down starch into maltose. Its optimum temperature for activity is around 37°C.

    a. What do you think happened to the rate of reaction when they increased the   temperature of the first test tube to 37°C?
    b. What do you think happened to the enzyme activity when the students decreased the temperature of the second test tube to O°C?
    c. Explain what an inhibitor is and what it does.

4. a. Fill in the missing words in the following text about enzymes and digestion.

Not all enzymes work inside cells in the body.

.... enzymes are produced by specialized cells in the pancreas and digestive tract. From there, the

enzymes pass out of the cells, into the .... and small intestine where they come into contact with food

molecules. Here, they catalyze the .... of large molecules, which are then more easily absorbed by the

body.

   b. Write down the name of the nutrient next to the enzyme that breaks it down.
      Use the words in the box below.

      i) Carbohydrase is an enzyme that breaks down ....

      ii) Protease is an enzyme that breaks down ....

      iii) Lipase is an enzyme that breaks down ....

      iv) Amylase is an enzyme that breaks down ....

   c. The stomach produces hydrochloric acid which increases the acidity of the stomach to the optimum pH for stomach enzymes to digest the food. However, digestive enzymes found in the small intestine are damaged by strongly acidic conditions. How does the body avoid damaging the digestive enzymes in the small intestine with this strongly acidic pH as the food passes out of the stomach?

5. a)   Biological washing powders contain protein-, fat- and carbohydrate-digesting enzymes to help remove stains. Name other uses for enzymes in the home
         or industry.

Assignment 3: Recall your concepts regarding photosynthesis and fill in the blanks.

1. All organisms require _____ to carry out their life functions.

2. _____ is the ultimate energy for all life on earth.

3. During photosynthesis, the energy from the sun is stored within _____ compounds, mainly the sugar _____.

4. Flattened sacs in chloroplasts are known as _____ and are _____ to each other.

5. Thylakoid sacs in chloroplasts are called _____.

6. Chlorophyll is most abundant in the _____ of a plant, while accessory pigments appear more in the _____ and fruits.

7. The light reactions start when _____ pigments absorb _____.

8. These electrons lose _____ as they are passed through a series of molecules called the _____ chain.

9. _____ or energy for a cell is synthesized during the light reactions in a process called _____.

9. Computer

- Write the syntax of two dimensional array:

- Write a step-form algorithm for making a telephone call to your Friend

- Brain storm, what the following algorithm is performing?

```
Algorithm
BEGIN
    SUM = 0
    N = 0
    DO WHILE (N <= 50)
        SUM = SUM + N
        N = N + 1
    END DO
END
```
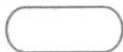   o
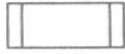
- Write the names of the following flowchart symbols.

Symbol
⬭
▭
▱
◇
◯
⬠
← → ↓↑
⊞
- - - - - ⌐

- Brain storm the idea, what the following flowchart is performing?
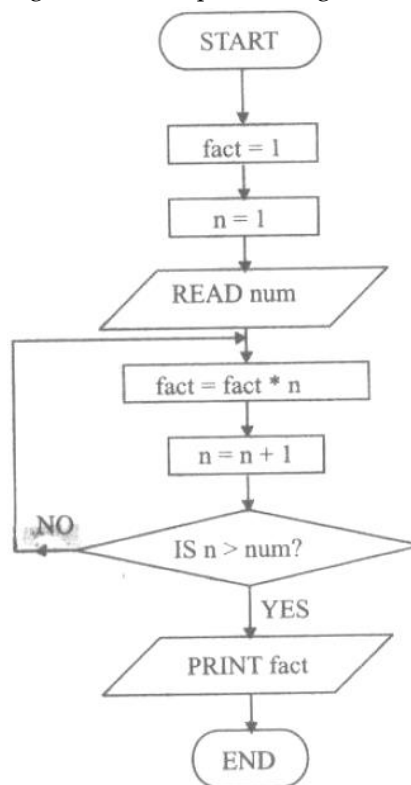
- Watch the following program example and elaborate in which mode it is written? Also uses of that mode.

```
auto
10  PRINT 786/3
20  PRINT "Welcome to GW-BASIC"
30  END
Ok

RUN
   262
Welcome to GW-BASIC
Ok
```

- Fill in the following empty fields.

Character	Type of Variable	Example	Memory Required
$		Name$	
%		Marks%	
!		Avg!	
#		Area#	

- What the following BASIC command is performing?
  - NAME "Remarks.doc" AS "RMK.doc"
- Brain storm and give the output with narration of following BASIC program.

```
10  REM  This program calculates the average of two numbers
20  a = 15
30  b = 25
40  avg = (a + b) / 2
50  ' Display the average
60  PRINT "Average = "; avg
70  END
```

- Carefully observe and fill up the following empty fields.

Operation	Symbol	Expression	Evaluation
Equal to (comparison)			
Less than			
Greater than			
Less than or Equal to			
Greater than or Equal to			
Not Equal to			

Operator	Precedence
	Highest
	Lowest

- Write the names of operator according to precedence.

  Explain the use if READ and DATA statement in the following program.

```
10  'This program demonstrates the use of DATA and READ statements
20  READ A, B, C$
30  PRINT C$; "=", (A+B)/2
40  DATA  10, 20, "Average"
50  END
RUN
```

- Write the purpose and syntax of following BASIC commands.

  (a)   DELETE   (b)   KILL   (c)   FILES
  (d)   LIST   (e)   LOAD   (f)   SYSTEM
  (g)   NAME   (h)   RENUM   (i)   RUN
  (j)   SAVE

- Write the purpose and syntax of GOTO and ON GOTO statement in GW-BASIC.
- Where ON ERROR GOTO statement should be used?
- Elaborate following syntax and algorithm with its use.

IF (expression) THEN
Statements (true task)
ELSE
Statements (false task)
	IF (expression) THEN line number
	
	ELSE
	Statements (false task)

- What the following program will do, if the age of candidate is 17 years and 5 five months?

```
10      INPUT "AGE"; A
20      IF A>= 17 THEN 30 ELSE 50
30      PRINT "Candidate is eligible"
40      GO TO 60
50      PRINT "Candidate is not eligible"
60      INPUT "Would you like to input again (Y/N)"; Y$
70      IF Y$ = "Y" THEN 10
80      END
```

- Which loop would be used to draw the following shape?

- Write the statement to produce following output.

R/C	0	1	2
0	A(0,0)	A(0,1)	A(0,2)
1	A(1,0)	A(1,1)	A(1,2)
2	A(2,0)	A(2,1)	A(2,2)
3	A(3,0)	A(3,1)	A(3,2)

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

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…
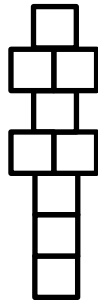
Stand at the bottom of the grid. Each square has a number 1-9 in it (I can't draw the number with my computer, but you can with chalk.) Use a small stone and slide it first to the 1st square. Hopping, jump over the square with the stone in it, continue hopping up the grid in the correct order, torn around, 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.
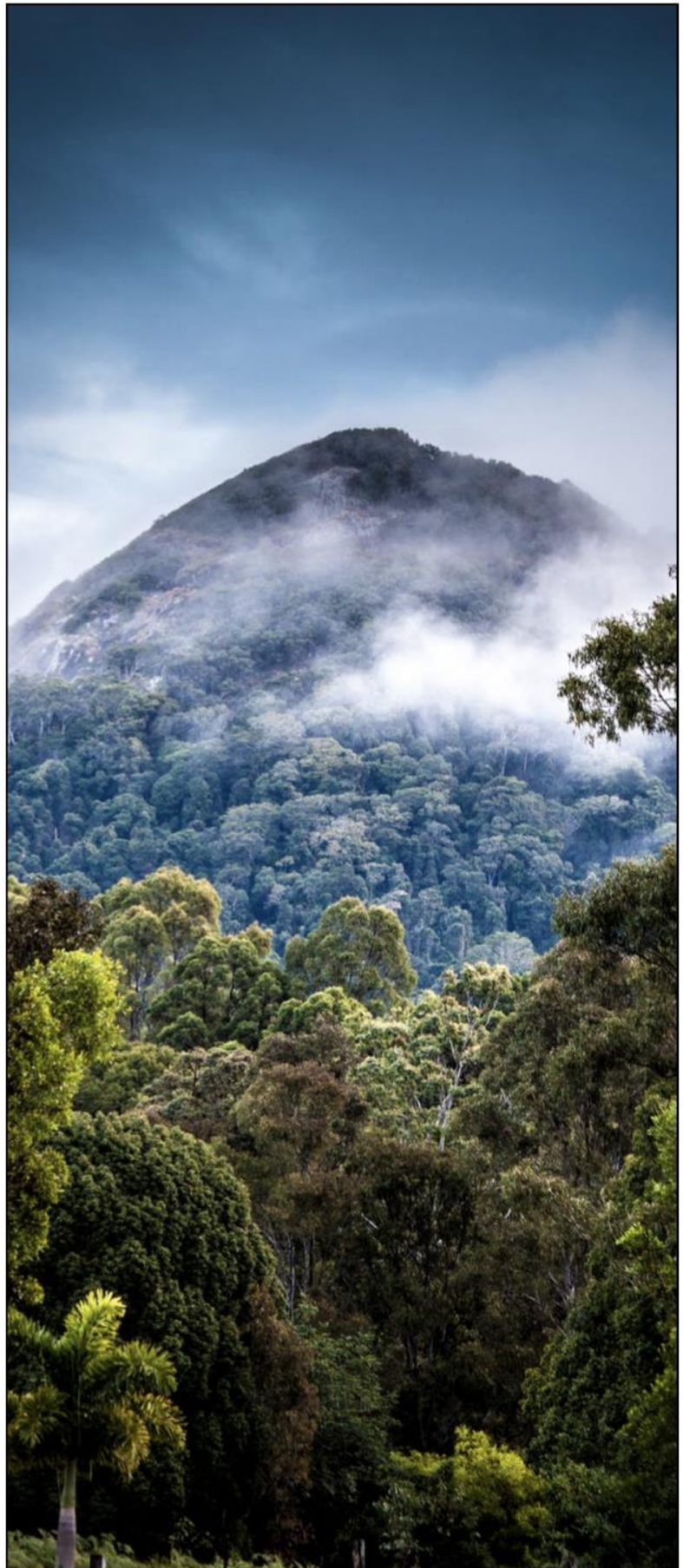
Deforestation 1

Answer the crossword using information from the article.
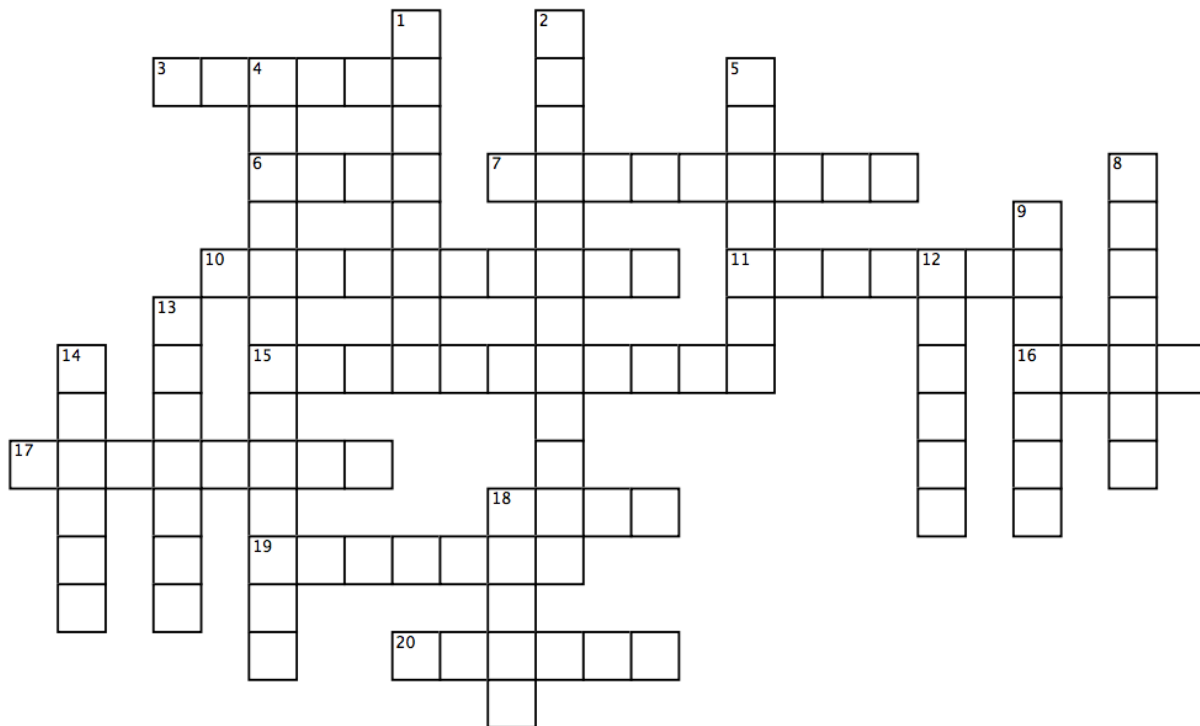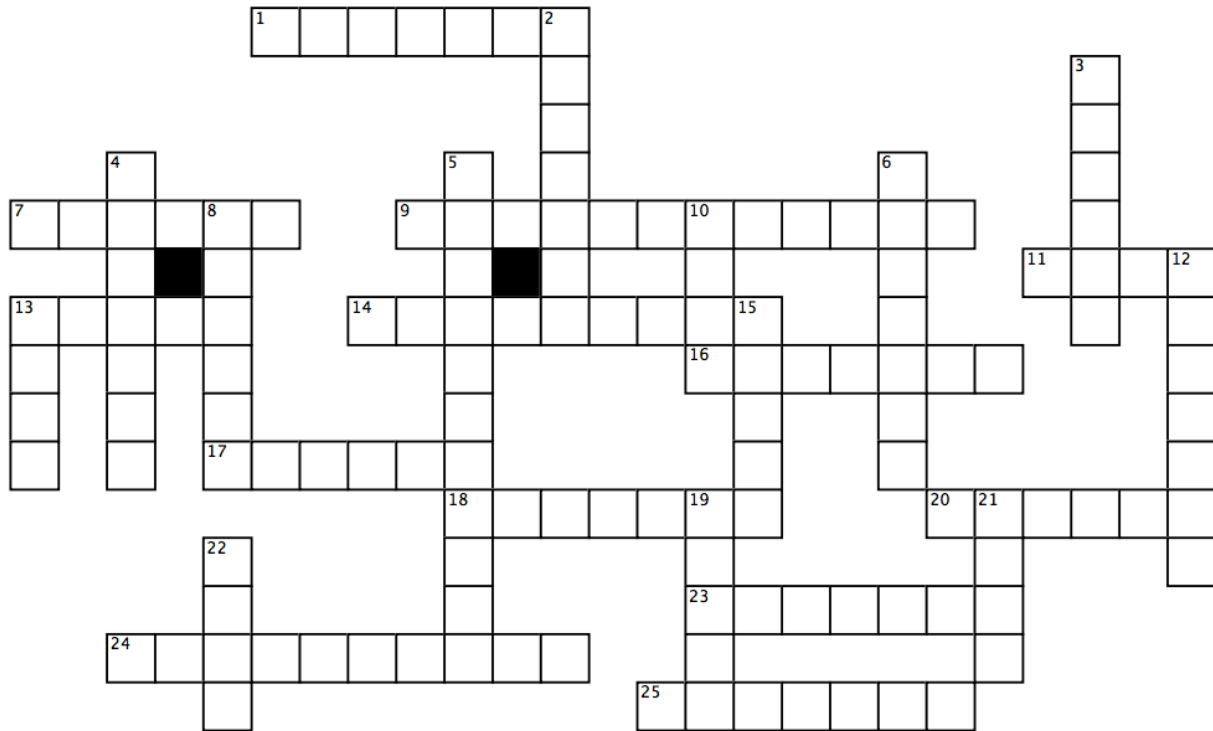

Across

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
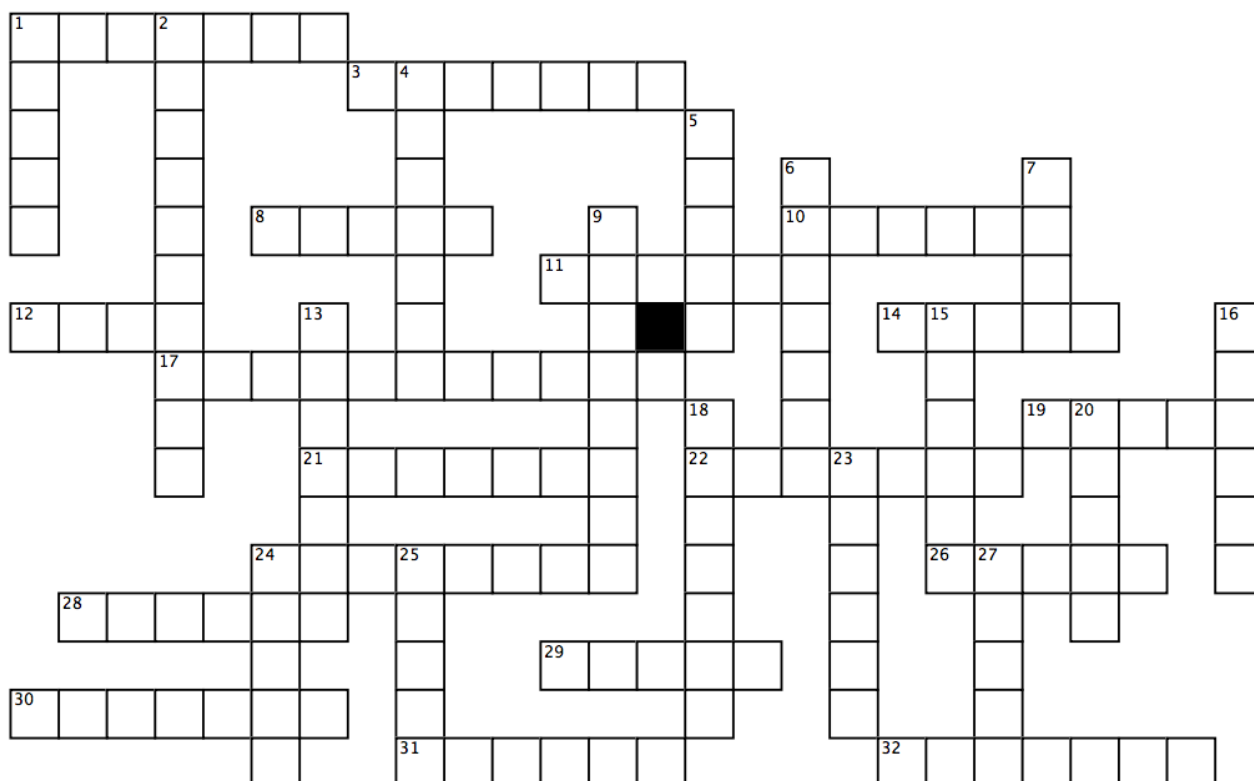
Across

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 _____.