



# SAINIK SCHOOL BHUBANESWAR

## SUMMER VACATION TASK 2020 – 21 (CLASS X)

### BIOLOGY

1. Draw the labelled diagram of human digestive system on a A4 size chart paper.
2. Explain Haemodialysis or artificial kidney and how it works.
3. Prepare a model on human excretory system.
4. Describe an experiment to demonstrate that carbondioxide is essential for the process of photosynthesis. ( Activity 6.2 – Life Process)
5. Draw a sectional view of human heart and labelled its different parts.
6. Compare between Arteries, Veins and Capillaries.(at least 05 points).
7. Draw the labeled diagram of opened and closed stomata. State the role of osmosis.
8. Describe an experiment to prove that chlorophyll is necessary for photosynthesis with the help of a variegated leaf plant. (Activity 6.1 – Life Process)
9. Name the different types of heart diseases or disorders in human. Write down its symptoms and precautionary measures to be followed.
10. Answer the following:-
  - (a) How COVID-19 affects human respiratory system?
  - (b) What are its signs and symptoms?
  - (c) How it can be prevented?
  - (d) How social distancing helps in breaking the chain of virus?
  - (e) How did the COVID-19 corona virus originated?



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### **GEOGRAPHY**

1. Collect pictures of Endangered, Vulnerable, Endemic, Rare and Extinct species and paste it in your note-book. And also write about them.
2. Collect different types of soil and write down their characteristics in your note-book.
3. Prepare a list of resources (natural and man-made) found in your state.
4. Imagine if oil supplies get exhausted, how will this affect our life style?
5. Collect information on the wildlife sanctuaries and national parks of India and site their location on the map of India.



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### ENGLISH

1. You decide to write an article in the school magazine on how it is important to save the planet, Earth. Write the article in about 180 words.
2. Video games, Internet, Cell Phones and other high-tech gear are just part of growing up in a digital world. But parents are concerned about the amount of time their children spend with these and worry that it might be distracting and cramping academic and social development.
  - (a) Write an article in 180 words, describing both the benefits and harms of using these high-tech devices.
  - (b) Write a short story in 200 – 250 words, with the help of the cues given below. Give a suitable title to the story.

Going to Mumbai by train to attend the marriage of a friend ..... got stuck in a traffic jam ..... reached the railway station late ..... boarded a wrong train .....realised after two hours ..... now you ...
  - (c) Write a short story in 200 – 250 words, with the help of the clues given below. Give a suitable title to the story.

Satish was standing on the balcony watching the last rays of the Sun. Loud and angry voices in the street below distracted his attention. He ran down the stairs to see what had happened ...
3. Write a short story in 200 – 250 words, with the help of the clues given below. Give a suitable title to the story.
  - (a) It was Mohini's first day at the new school. She was feeling very nervous. She stood in a corner and watched the students who were laughing and talking excitedly. When she saw four senior students advancing towards her, she .....
4. You are Radha G, member of NGO AWAAZ. Write a letter to the editor of a national daily for a public movement to clean the Yamuna river. (You must introduce yourself, describe how the people are to be blamed for polluting the river and suggest the need for installing water treatment plant to clean the river).
5. Saliasahi is a thickly populated locality inhabited mainly by the working-class people. Unfortunately, there is no Omfed milk booth in the locality. Write a letter in 100 - 120 words to the editor of a local daily drawing the attention of the authorities to the problem faced by the people, requesting them to open a milk booth. You are Sham / Shobha, Salia Sahi, Bhubaneswar.



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### CHEMISTRY

1. Give the examples of chemical process (at least 10) occurring in everyday life.
2. Write the name of some chemical compounds (at least 10) that you used in day to day life. Classify them as acids, base and salt.
3. List the use of carbon and carbon compound in day to day life.
4. Draw a modern periodic table in a full chart paper.
5. Prepare a model of soap. (Refer page no. 78)
6. Also prepare a soda acid fire extinguisher. (Refer page no. 36)



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### HINDI

१. अनुप्रास, रूपक, पुनरुक्तिप्रकाश, उपमा और अतिशयोक्ति अलंकारों की परिभाषा लिखकर एक –एक उदाहरण लिखें ।
२. आपके रिश्तेदारों या पड़ोस में हरिहर काका जैसे किन्हीं तीन वृद्धों की समस्याओं के बारे में लिखिए और साथ ही उनकी समस्याओं का समाधान सुझाइए ।
३. आपने लॉकडाउन के समय में क्या सृजनात्मक कार्य किया , उसके बारे में बताते हुए अपने शिक्षक को पत्र लिखें ।
४. स्कूल मैगजीन के लिए अपने मन से कोई कविता, कहानी, निबंध, चुटकुला, रोचक तथ्य, जीवनी या कोई ऐसी घटना का वर्णन करें जिससे आपके सकारात्मक विचार और दृढ़ हुए हों ।
५. विश्व महामारी कोरोना संबंधित जानकारी एकत्रित करें और उससे बचने का उपाय बताते हुए एक परियोजना कार्य तैयार करें ।



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### PHYSICS

- Name the unit of :  
(a) Electrical resistance                      (b) Resistivity
- Define One Ohm?
- Define Resistivity?
- Determine the direction of conventional current?
- What is electrical power? Write it's unit?
- You take two resistors of resistance  $2R$  and  $3R$  and connect them in parallel in an electric circuit. Calculate the ratio of the electric power consumed by  $2R$  and  $3R$ ?
- A small bulb has a resistance of  $2\text{ohm}$  when cold. It takes up a current of  $0.4\text{ A}$  from a source of  $4\text{V}$  and then starts glowing. Calculate (i) the resistance of bulb when it is glowing and (ii) Elaborate on the reason for the difference in resistance?
- Define resistance and resistivity and also give the relation between them. Explain the dependence of resistance on temperature?
- A bulb is rated at  $330\text{V}-110\text{W}$ . What do you think is its resistance? Three such bulbs burn for  $5\text{ hrs}$  at a stretch. What is the energy consumed? Calculate the cost in rupees if the rate is  $70\text{ paisa}$  per unit?
- Calculate the resistance of  $2\text{km}$  long copper wire of radius  $2\text{mm}$ . [Resistivity of copper= $1.72 \times 10^{-8}$ ]?
- What connection is used in domestic appliances and why?
- A  $250\text{ watt}$  electric bulb is lighted for  $5\text{ hrs}$  daily and four  $6\text{ watt}$  bulbs are lighted for  $4.5\text{ hours}$  daily .Calculate the energy consumed (in  $\text{KWh}$ ) in the month of February ?
- A torch bulb is rated at  $3\text{V}$  and  $600\text{mA}$ . Calculate it's Power Resistance Energy consumed if it is lighted for  $4\text{ Hrs}$ .
- State and derive joule's law. An electric iron consumes energy at rate of  $420\text{w}$  when heating is at maximum rate and  $180\text{w}$  when heating is at minimum. The voltage is  $220\text{V}$ . What is the current and resistance in each case?
- A piece of wire having a resistance  $R$  is cut into five equal parts.
- How will the resistance of each part of the wire compare with the original resistance?
- If the five parts of the wire are placed in parallel, how will the resistance of the combination compare with the resistance of the original wire? What will be ratio of resistance in series to that of parallel?



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## SUMMER VACATION TASK 2020 – 21 (CLASS X)

### MATHEMATICS

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**Activity 1: Verify that the length of the tangents from external point is equal.**

**Activity 2: Determine the consistency and inconsistency of the given linear equations.**

**Activity 3: Determine the zeroes of the polynomial and verify it.**

- Two circles touch each other internally. Show that the tangents drawn to the circles from any point on the common tangents, are equal in length.
- The in circle of a  $\Delta ABC$  touches the sides BC, CA, AB at D,E,F respectively. If  $AB = AC$ , Prove that  $BD = CD$ .
- ABCD is a quadrilateral such that angle D =  $90^\circ$ . A circle C(O,r) touches the sides AB, BC, CD and DA at P,Q,R and S respectively. If  $BC=30$  cm,  $BP=20$ cm,  $CD=18$ cm, find r.
- Prove that the points (0,0), (5,5) and (-5,5) are vertices of a right isosceles triangle.
- Find the value of k, if the point P(0,2) is equidistant from (P,k) and (k,5).
- (3,4), (-2,3) and (x,y) are vertices of an equilateral triangle. Find x and y.
- Find the ratio in which the point (-3,P) divides the line segment joining the points (-5,-4) and (-2,3) . Hence find the value of p.
- Find the ratio in which the line segment joining A(1,-5) and B(-4,5) is divided by the X axis. Also find the coordinates of the point of division.
- Point P(-5,x) , Q(y,7) and R(1,-3) are collinear, such that  $PQ=QR$ . Calculate the values of x and y.
- Find the vertices of the triangle the mid points of whose sides are (3,1), (5,6) and (-3,2).
- The line joining the points (2,1) and (5,-8) is trisected at the points P and Q. If point P lies on the line  $2x-y+k=0$ . Find the value of k
- If a vertex of a triangle be (1,1) and the middle points of the two sides through it be (-2,3) and (5,2) , find the centroid of the triangle.
- If the points (1,2) , (-2,-10) and (3,p) are collinear, find the value of p.
- Find the area of the triangle formed by the points (a,c+a), (a,c) , (-a,c-a).
- Find the zeroes of the polynomial  $x^3 - 6x^2 + 3x + 10$ , it is given that the zeroes are in A.P.
- Obtain all the zeroes of  $P(x) = 3x^4 + 6x^3 - 2x^2 - 10x - 5$  if two of its zeroes are -1,-1 .
- If  $x^2 + x - 12$  divides  $P(x) = x^3 + ax^2 + bx - 84$  exactly, find a and b.
- Form a quadratic polynomial whose one zero is 8 and the product of its zeroes is -56.
- If (3)  $x+y = 81$  and (81)  $x-y = 3$ , then find the values of x and y.
- Find graphically the coordinates of vertices of a triangle whose sides have the equation:  $x-2y=4$  ;  $x=4$  and  $x-y=3$ .
- A train crosses a platform 90m long in 30sec and a man standing on a platform in 15 sec, find the speed of the train.
- Solve for x and y:  $0.4x+0.3y=1.7$  ;  $0.7x-0.2y=0.8$ .
- Solve for x and y  $148y+231x=527xy$   $231y+148x=610xy$ .
- 90% and 97% pure acid solutions are mixed to obtain 21ltrs of 95% pure acid solutions. Find the amount of each type of acid to be mixed to form the mixture.
- If  $\alpha, \beta$  are zeroes of the quadratic polynomial  $x^2 - 7x + 10$ , find the value of  $\alpha^3 + \beta^3$  .



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### HISTORY

1. Draw the map of India and locate the following places Chaurichaura, Kheda, Champaran, Dandi, Nagpur, Surat, Benaras, Bandoli, Ahmedabad and Lucknow. Write about the importance of these places in the freedom struggle of India.
2. Describe the two world wars and locate the countries involved in the war in a chart paper.
3. Write about the unification of Italy and locate the important places of Italy in the map of Europe.



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## **SUMMER VACATION TASK 2020 – 21 (CLASS X)**

### **COMPUTER SCIENCE**

1. Create a story / game / quiz / animation related to any topic based on your subjects using scratch.