

Dear Children.

You are looking forward to your summer break with great enthusiasm and zeal. You must have made plans to enjoy them in your way. Do remember that you have to do some academic work to be in tune with your studies. The summer assignment in each subject carries weightage as allotted to assignments. All the work is to be done in scrapbook/three-in-one notebook as instructed.

English

- Do the Homework on pages and put them in a file.
- 1. Prepare notes of the given Grammar topics on the basis of your understanding and also give 15 examples :
 - Determiners (R.no. 1to 10)
 - Prepositions (R.no. 11to20)
 - Conjunctions (R.no. 21to 30)
 - Modals (R.no.3 1to 40)
 - Tenses (R.no.4 1to 50)
- 2. Make a word bank on the following topics (15 words):
 - Homophones (R.no. 1to 10)
 - Antonyms (R.no. 11to20)
 - Synonyms (R.no. 21to30)
 - One word Substitution (R.no. 31to40)
 - Simile (R.no. 41to50)

Hindi

कक्षा-9

- 'पर्यावरण संरक्षण'—इस विषय पर आधारित अध्यापक व विद्यार्थी के मध्य हुआ संवाद ।(सभी विद्यार्थियों के लिए)
- प्रतिदिन विद्यालय जाने के महत्त्व पर माँ और बेटी के मध्य हुआ संवाद । (सभी विद्यार्थियों के लिए)
- क्षितिज,गद्य भाग के पाठ क्रमांक-1,2, पढ़कर 20 उपसर्ग युक्त शब्द छाँटकर उपसर्ग चक्र बनाइए। Roll No. 1-20
- क्षितिज,गद्य भाग के पाठ क्रमांक-1,2, पढ़कर 20 प्रत्यय युक्त शब्द छाँटकर प्रत्यय वृक्ष बनाइए। Roll No. 21-40
- 'जीवन में योग की आवश्यकता'—इस विषय पर दो पृष्ठीय निबंध लिखिए। Roll No. 41-55

Sanskrit

- 1) नीतियुक्ता: दश श्लोका: Roll No. (1-25)
- 2) पशु-पक्षीणां जीवनेन सम्बद्धा सचित्र-एकाकथा Roll No. (1-25)
- 1) स्वास्थ्यस्य दृष्ट्या योगस्य महत्त्वम् (सचित्रम्) Roll No. (26.....)
- 2) विद्या , सत्संगतिः , परोपकारं च कस्मिचित् एकस्मिन् विषये अनुच्छेद-लेखनम् Roll No. (26.....)

Science

1. Find out the ancient methods that were used for conservation and preservation of natural resources. (like water storage facilities, ventilation system to keep the room temperature maintained)
2. Use various sources to know more about tissues in human body, the diseases that affect each of them and cures available for them. Also note down separately those diseases which are hereditary i.e. run in the family.
3. Do a comparative study of plasma TV and LED/LCD. Analysis which is better and why?(use various available recourses)

Social Science

1. Prepare a project on any one of the following natural disaster:
 - 1.Drought
 - 2.Cyclone
 3. earthquakes

Students can use the following topics-

- Introduction and driving forces of all the natural disaster.
- Migration-A powerful factor in disaster Management.
- Indian subcontinent: A disaster prone Area.
- Various causes for natural and man-made disaster.
- How disaster affect the Development.
- Role of Govt. and community in disaster management.

Maths

Questions in practice sheet given below to be solved:

Number System

1. Find the value of (a) $\frac{\sqrt{32}+\sqrt{48}}{\sqrt{8}+\sqrt{12}}$, (b) $16\sqrt{13} \div \sqrt{52}$ (c) $(3^{\frac{12}{7}} - 3^{\frac{5}{7}})^{\frac{7}{5}}$ (d) $(\sqrt{7^3})^{\frac{2}{3}}$
2. Represent (a) $\sqrt{5}$, (b) $\sqrt{13}$ (c) $\sqrt{20}$ on separate number lines.
3. Write three rational and three irrational numbers between $-\frac{3}{4}$ and $-\frac{1}{2}$.
4. Write three rational and three irrational numbers between $\sqrt{2}$ and $\sqrt{3}$.
5. Visualize 2.5353...on number line upto four decimal places.
6. Represent $\sqrt{8.5}$ on number line.
7. Arrange the following into descending order (a) $\sqrt[8]{90}$, $\sqrt[4]{10}$ and $\sqrt[2]{6}$. (b) $\sqrt[3]{18}$, $\sqrt[6]{144}$ and $\sqrt{343}$ (c) $\sqrt[4]{10}$, $\sqrt[3]{6}$ and $\sqrt{3}$.

8. Simplify: (a) $\sqrt[3]{24} + \sqrt[3]{81} - \sqrt[3]{192}$ (b) $\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[5]{32} + \sqrt{225}$ (c) $3\sqrt{147 - \frac{7}{3}\sqrt{\frac{1}{3}}} - \frac{1}{\sqrt{27}}$ (d) $(3\sqrt{2}+4\sqrt{3})(12\sqrt{2}+13\sqrt{3})$
9. Rationalize the denominator of : (a) $\frac{1}{\sqrt{3}+\sqrt{2}-\sqrt{5}}$ (b) $\frac{15}{\sqrt{6}+\sqrt{5}-\sqrt{11}}$
10. If $x=3+2\sqrt{2}$, then find (a) $x^2 + \frac{1}{x^2}$ (b) $x^4 + \frac{1}{x^4}$ (c) $\sqrt{x} + \frac{1}{\sqrt{x}}$
11. Evaluate (a) $\sqrt{5 + 2\sqrt{6}}$ (b) $\sqrt{8 - 2\sqrt{15}}$
12. Find x and y if $\frac{\sqrt{11}-\sqrt{7}}{\sqrt{11}+\sqrt{7}} = x - \sqrt{77}y$
13. If $x+y\sqrt{2} = \frac{3+2\sqrt{2}}{3-\sqrt{2}}$, find x and y.
14. If $a + b\sqrt{7} = \frac{\sqrt{7}-1}{\sqrt{7}+1} - \frac{\sqrt{7}+1}{\sqrt{7}-1}$, find a and b.
15. Prove that $\frac{1}{1+\sqrt{2}} + \frac{1}{\sqrt{2}+\sqrt{3}} + \frac{1}{\sqrt{3}+\sqrt{4}} + \dots + \frac{1}{\sqrt{8}+\sqrt{9}} = 2$
16. Prove that $\frac{1}{3-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}+2} = 5$
17. If $x = \frac{\sqrt{p+2q} + \sqrt{p-2q}}{\sqrt{p-2q} - \sqrt{p-2q}}$ then show that $qx^2 - px + q = 0$.

Polynomials

18. If $p(x) = x^3 - x^2 + x + 1$, then find the value of $\frac{p(1)+p(-1)}{2}$.
19. Find the value of polynomial $5x - 4x^2 + 4$ at $x = -1$.
20. Find the remainder when $2x^3 - 3x^2 + 2x - 4$ is divided by $x - 2$ (use remainder theorem)
21. Find the remainder when $x^{61} + 61$ is divided by $x + 1$.
22. Check whether, $x + 1$ is a factor of $x^{51} - 1$.
23. Find the value of k for which $x - 1$ is a factor of $x^3 + kx^2 - 2x + 4$
24. Find k if $x + k$ is a factor of $x^3 + kx^2 - 2x + k + 4$
25. Using identity find the value of (a) $399^2 - 398^2$ (b) 102^2 (c) 998^2 (d) $50^3 - 30^3 - 20^3$
(e) 101×99 (f) 1.05×9.5 .
26. Factorize: (a) $(a + b)^3 - (a^3 + b^3)$ (b) $24x^2 - 41x + 12$ (c) $4(x-y)^2 - 12(x-y)(x+y) + 9(x+y)^2$ (d) $12(x^2 + 7x)^2 - 8(x^2 + 7x)(2x - 1) + (2x - 1)^2$ (e) $\frac{1}{8}a^3 + \frac{1}{4}a^2b + \frac{1}{6}ab^2 + \frac{1}{27}b^3$ (f) $8x^3 - (2x - y)^3$ (g) $4x^2 + 9y^2 + z^2 + 12xy + 4xz + 6yz$. (h) $(a + b)^3 - (a - b)^3$
27. Find the value of m, if $2x^4 - mx^3 + 4x^2 + 2x + 1$ is divisible by $1 - 2x$.
28. Find the value of a if $x - a$ is a factor of $x^5 - a^2x^3 + 2x + a + 1$.
29. Show that $x + a$ is a factor of $x^n + a^n$ for any odd integer n.
30. Show that $x + a$ is a factor of $x^m - a^m$ for any even integer m.
31. Find the value of a if $ax^3 + 3x^2 - 3$ and $2x^3 - 5x + a$ leave the same remainder when divided by $x - 4$.
32. Prove that $x^2 + 2x + 3$ has no real zero.
33. Find a and b if $x - 1$ and $x + 3$ are the factors of $x^3 - ax^2 - 13x + b$.
34. Find the value of $x^3 + y^3 + 12xy - 64$, if $x + y = 4$
35. Find the value of $(2-a)^3 + (2-b)^3 + (2-c)^3 - 3(2-a)(2-b)(2-c)$, if $a + b + c = 6$
36. The polynomials $ax^3 + 3x^2 - 3$ and $2x^3 - 5x + a$, when divided by $x - 4$ leave the remainders m and n respectively. Find a if $m + n = 0$
37. Prove that $(x + y)^3 + (y + z)^3 + (z + x)^3 - 3(x + y)(y + z)(z + x)$
38. If $x - 3$ and $x - \frac{1}{3}$ are the factors of $ax^2 + 5x + b$. show that $a = b$
39. Factorize: $(x - a)^3 + (y - b)^3 + (z - c)^3$ if $x + y + z = a + b + c$
40. Factorize: $(x - y)^3 + (y - z)^3 + (z - x)^3$