



# Start Early

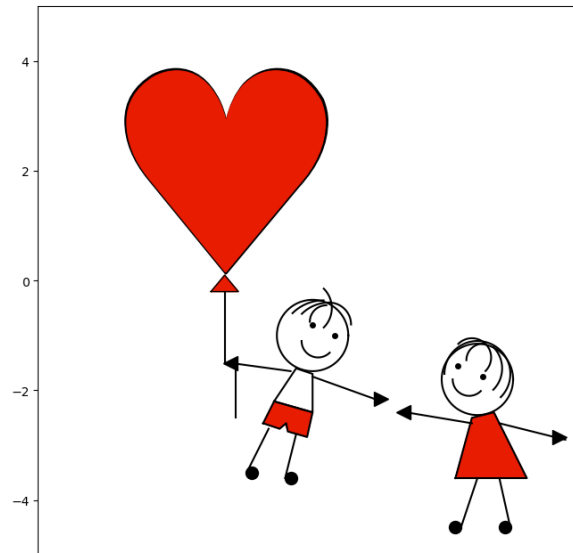
Build a Strong Foundation for Lifelong Learning

Invest in your child's future today.  
**Quality education is priceless!**

# Start as Early as Grade II

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## Knowledge Management (KM) Say No to Rote Learning!

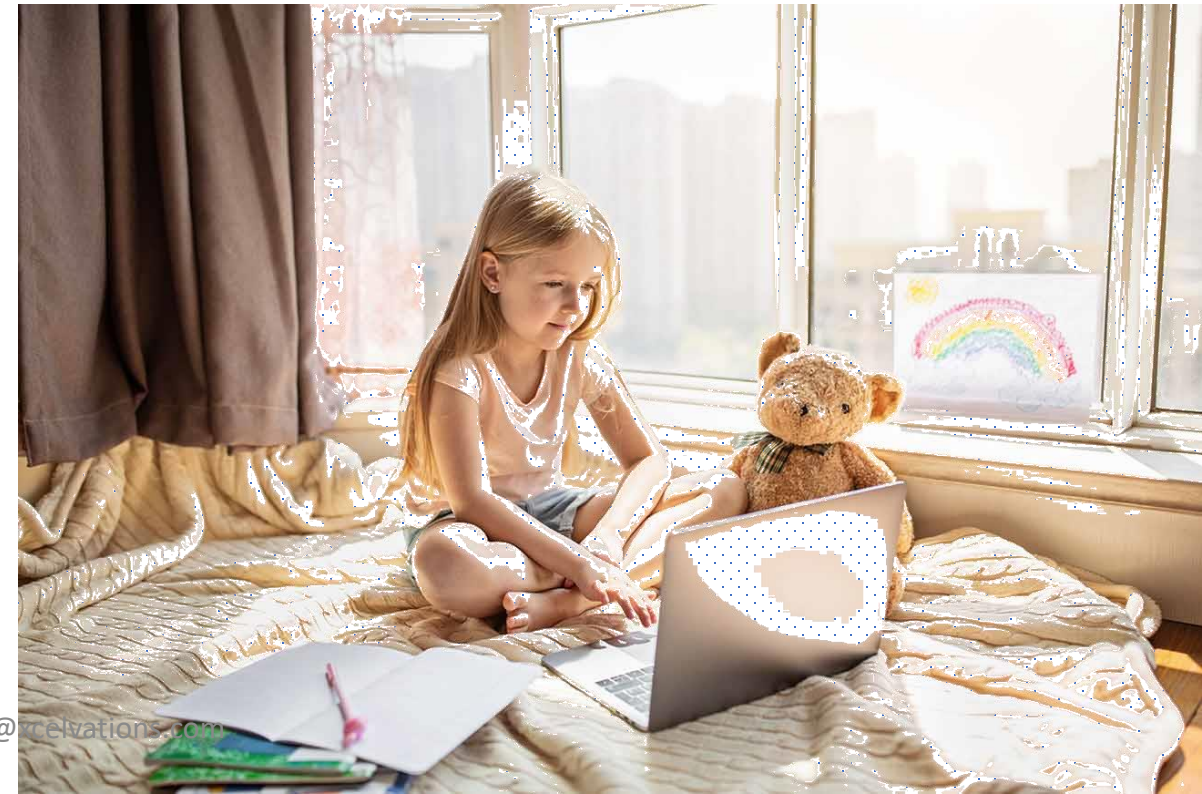


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Created by Grade II Students Using Matplotlib in Python Programming

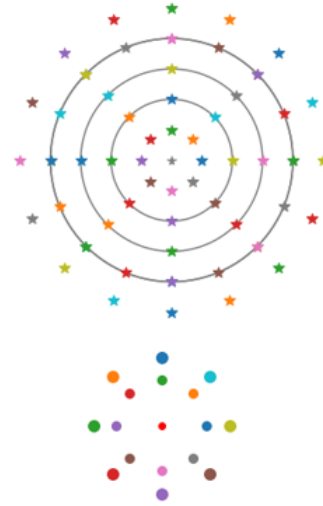
# Contact us

- call or message on WhatsApp at +91 75699 33343, or
- email us at [info@xcelvations.com](mailto:info@xcelvations.com)



# Prerequisite

- We don't require any prior qualification test.
- No Programming skill required
- Focus on building chemistry, fun and learning.
- No homework or practice after sessions.



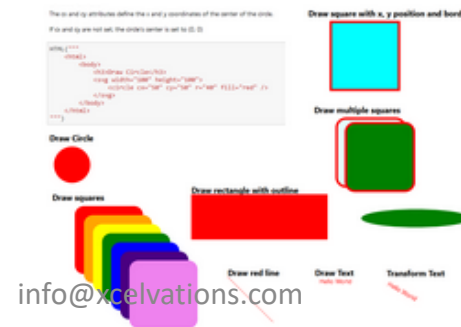
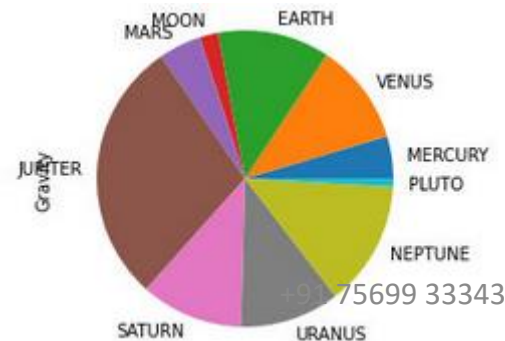
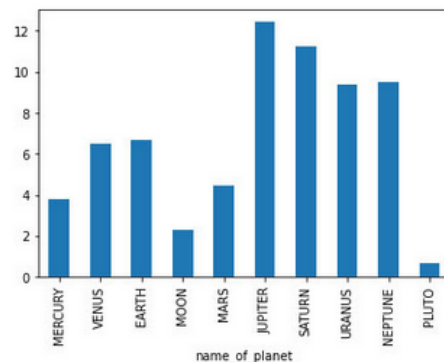
# We always ...

- start with foundational concepts.
- encourage exploration, analysis, and conclusion, eliminating the need for memorization and repetitive practice.
- reinforce facts and concepts by presenting them repeatedly in varied forms and contexts, fostering deep familiarity and understanding.



# Start as Early as Grade II

- Young minds are naturally creative, adaptable, and quick to learn.
- Early learning fosters a solid conceptual foundation for future success.
- Starting as early as Grade II ensures intuitive understanding and quality learning.
- Reduces the need to unlearn and readjust when starting later.
- Prepares students for easier transitions and greater achievements in higher education.



jupyterhub difficult\_math (unsaved changes)

```
File Edit View Insert Cell Kernel Widgets
```

```
In [ ]: 1 2+15/5-2+4*6/2*5-4*21/3+5-3*2
```

```
In [ ]: 1 2+3-2+4*3*5-4*7+5-3*2
```

```
In [ ]: 1 2+3-2+12*5-4*7+5-3*2
```

```
In [ ]: 1 2+3-2+60-4*7+5-3*2
```

```
In [ ]: 1 2+3-2+60-4*7+5-6
```

```
In [ ]: 1 2+3-2+60-28+5-6
```

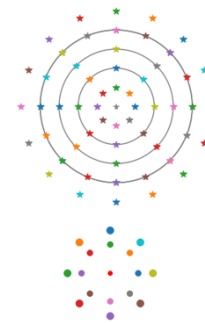
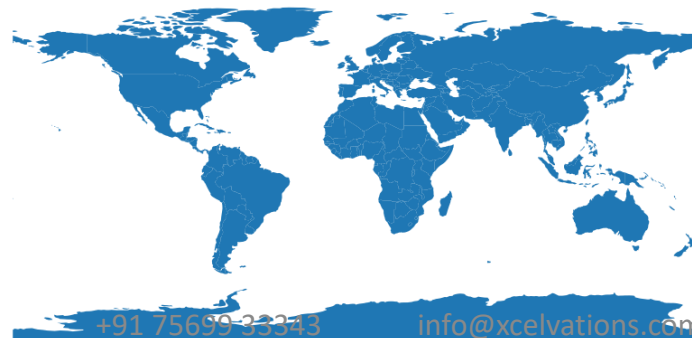
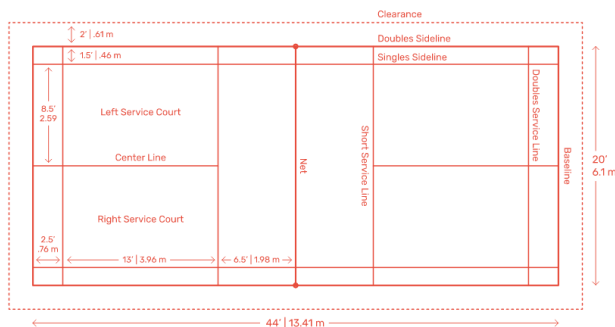
```
In [ ]: 1 +2+3-2+60-28+5-6
```

```
In [ ]: 1 +2+3+60+5-2-28-6
```



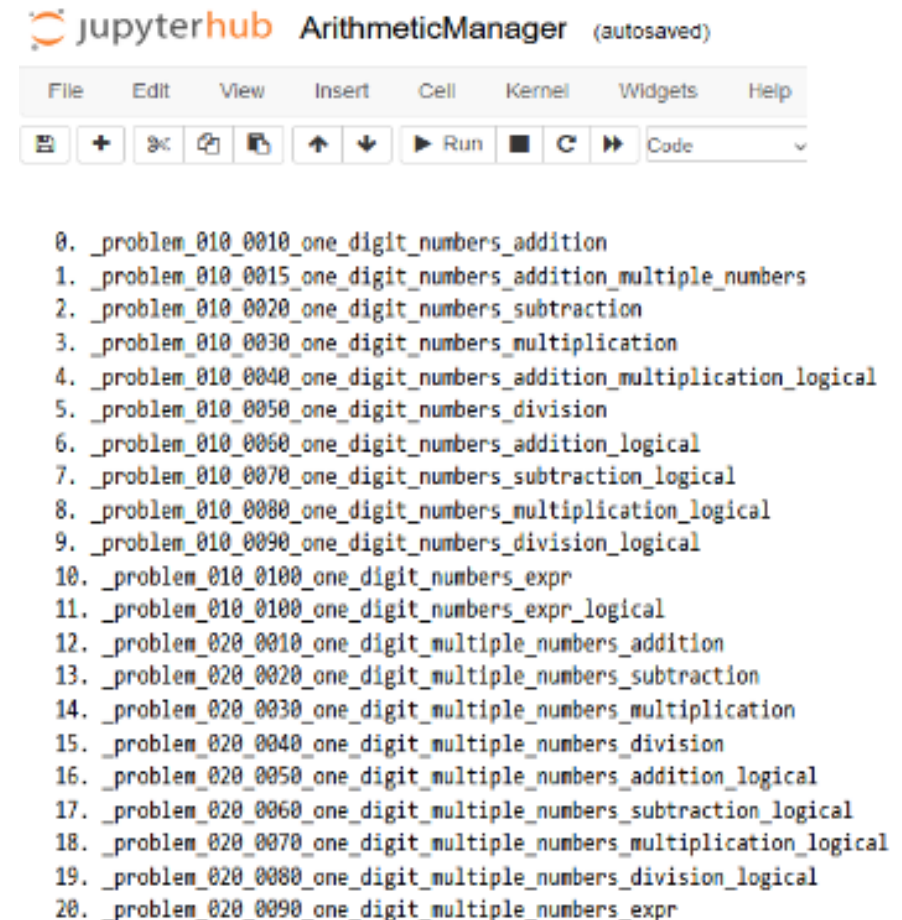
# Do Online Classes Work with Younger Students?

- **Absolutely!** Younger students adapt quickly to online learning with minimal guidance.
- **Tech Familiarity:** With just a few days of assistance in basic tasks like using a keyboard, mouse, and navigation tools, they become self-sufficient.
- **Quick Learners:** They grasp new concepts faster than we often anticipate.
- **Programming** enables them to explore core subject concepts in a more intuitive and impactful way.



# Highlights

- Online only sessions (Google Meet)
- No memorization
- No homework
- No extra assignments
- Programming as a language of communication
- 12 to 16 one-hour sessions per month



The screenshot shows a Jupyter Notebook interface with the title "ArithmeticManager (autosaved)". The menu bar includes File, Edit, View, Insert, Cell, Kernel, Widgets, and Help. The toolbar contains icons for file operations, navigation, and execution. The main content area displays a list of 20 arithmetic problems, numbered 0 to 20, with their respective operations and logical constraints.

```
0. _problem_010_0010_one_digit_numbers_addition
1. _problem_010_0015_one_digit_numbers_addition_multiple_numbers
2. _problem_010_0020_one_digit_numbers_subtraction
3. _problem_010_0030_one_digit_numbers_multiplication
4. _problem_010_0040_one_digit_numbers_addition_multiplication_logical
5. _problem_010_0050_one_digit_numbers_division
6. _problem_010_0060_one_digit_numbers_addition_logical
7. _problem_010_0070_one_digit_numbers_subtraction_logical
8. _problem_010_0080_one_digit_numbers_multiplication_logical
9. _problem_010_0090_one_digit_numbers_division_logical
10. _problem_010_0100_one_digit_numbers_expr
11. _problem_010_0100_one_digit_numbers_expr_logical
12. _problem_020_0010_one_digit_multiple_numbers_addition
13. _problem_020_0020_one_digit_multiple_numbers_subtraction
14. _problem_020_0030_one_digit_multiple_numbers_multiplication
15. _problem_020_0040_one_digit_multiple_numbers_division
16. _problem_020_0050_one_digit_multiple_numbers_addition_logical
17. _problem_020_0060_one_digit_multiple_numbers_subtraction_logical
18. _problem_020_0070_one_digit_multiple_numbers_multiplication_logical
19. _problem_020_0080_one_digit_multiple_numbers_division_logical
20. _problem_020_0090_one_digit_multiple_numbers_expr
```





# What is Knowledge Management (KM)?

- KM is our learning software.
- A mix of algorithms, AI, content, and a philosophical change in the learning process.
- Faster and concept-based learning.
- Web and Python Jupyter-based interface.
- The interwoven conceptual content enables faster learning and includes in-built practice.
- Algorithm/AI-generated content and problems make it a never-exhausting resource for learning.

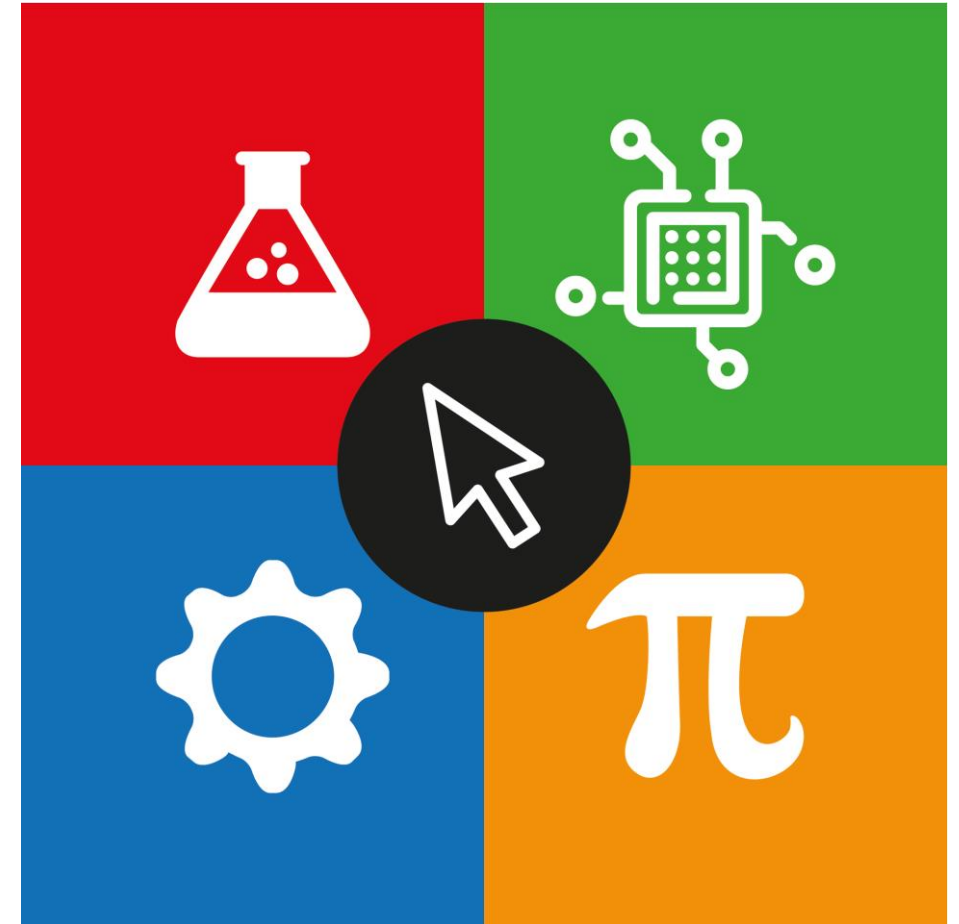
# Curriculum on Offer

- Math Olympiad
- Science Olympiad
- English Olympiad
- Grade 2 to Grade 12
  - All subjects
  - A specific subject
  - Math, Physics, Chemistry
- SAT Grade 10 and Grade 12
- Art of Problem Solving (Math)



# Subjects Covered

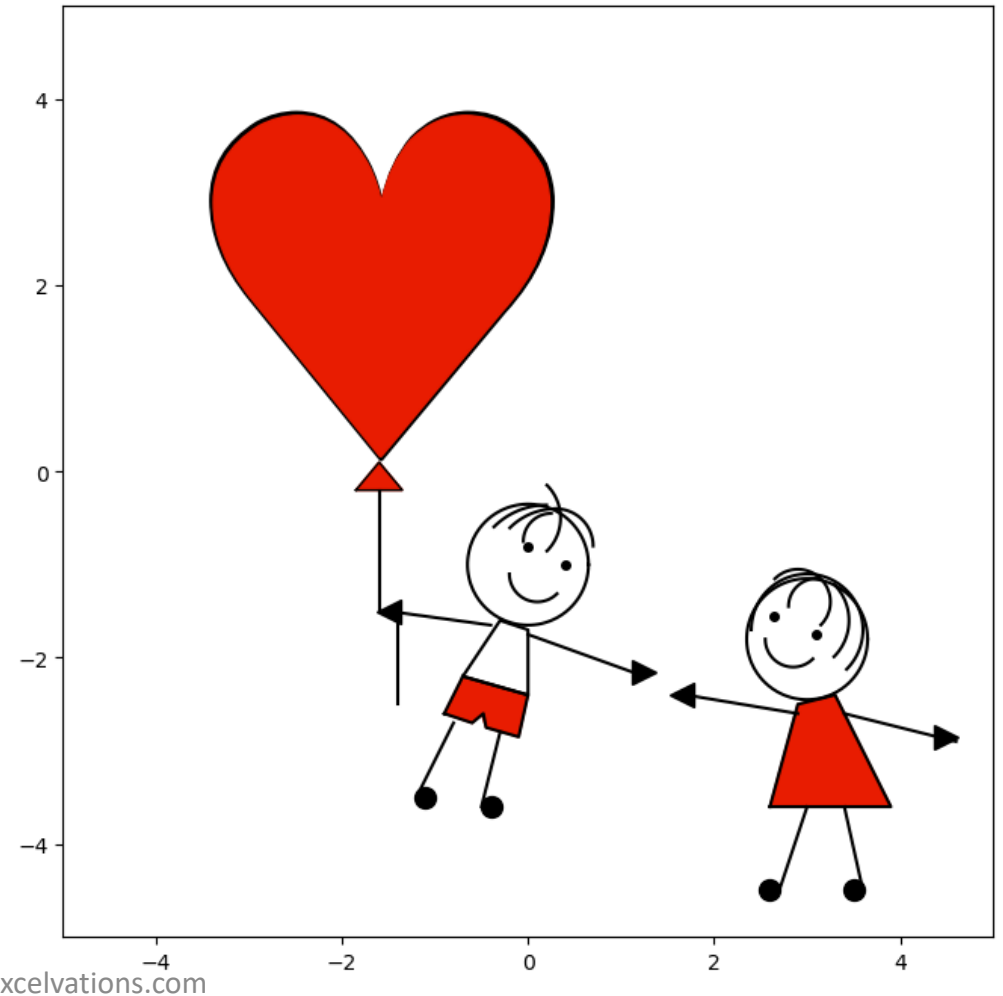
- Math
- Science
  - Physics
  - Chemistry
  - Math
  - Biology (up to Grade 10 only)
- English
- Social Studies
  - for middle school only



Note: "Grade" refers to "Class".

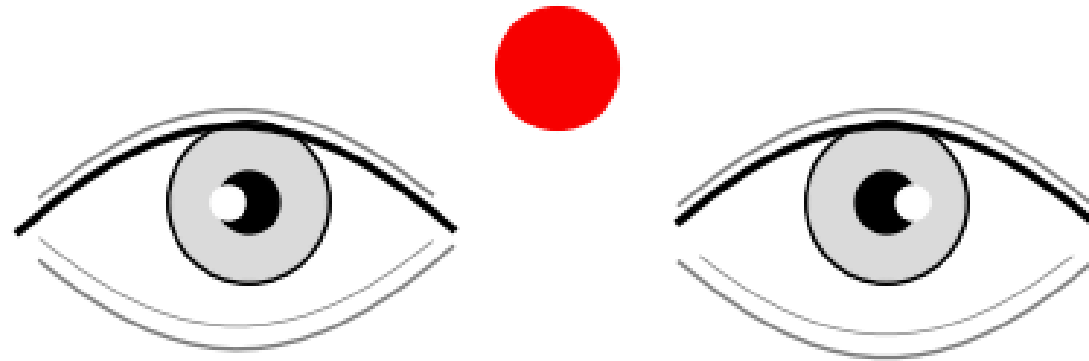
# Learning Made Fun and Effective!

- Programming to Learn and Have Fun
- This image was created by primary grade students using Matplotlib in Python programming.



# Learning Art and Geometry Through Programming

- Primary grade students explored art and geometry by creating this image using Matplotlib in Python programming.





# Books and Course Material

- KM provides content and questions.
- As mentioned earlier, most of the material is delivered through Python Jupyter.
- It offers extensive content for learning and repeated practice (though we discourage the latter).
- We do not prescribe any specific books.
- A wide range of publicly available videos from various sources is also utilized.





# Grid: Number Multiples

CLEAR GRID

|    |    |    |    |    |    |    |    |  |
|----|----|----|----|----|----|----|----|--|
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  |  |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |  |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |  |

|  |  |  |  |  |  |  |  |    |
|--|--|--|--|--|--|--|--|----|
|  |  |  |  |  |  |  |  | 9  |
|  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  | 27 |
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# Number Operation Grid

CLEAR GRID

|   |   |   |
|---|---|---|
| 9 | 4 | 9 |
| 6 | 9 | 9 |
| 0 | 0 | 0 |
| 6 | 6 | 6 |
| 6 | 9 | 9 |

|   |   |  |
|---|---|--|
| 1 | 4 |  |
| 8 | 4 |  |
| 1 | 0 |  |
| 7 | 2 |  |
| 0 | 7 |  |

# Smaller or Bigger: Small Numbers

CLEAR GRID

## Split a number

CLEAR GRID

400000000 +  = 500000000

100000000 +  = 500000000

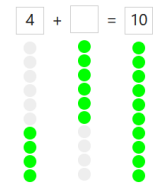
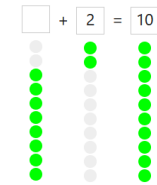
300000000 +  = 500000000

200000000 +  = 500000000



## Sum to Ten

CLEAR GRID



## Make Large Numbers Advanced

CLEAR GRID

2 2 1 1 two thousand two hundred and eleven

0 zero

2 4 2 1 two thousand four hundred and twenty one

four thousand six hundred and thirty two

## Multiplication to Power

CLEAR GRID

8 \* 8 \* 8 ... 90 times

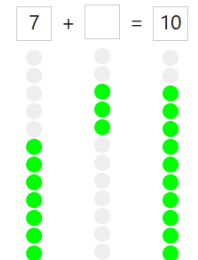
6 \* 6 \* 6 ... 900 times

9 \* 9 \* 9 ... 60 times

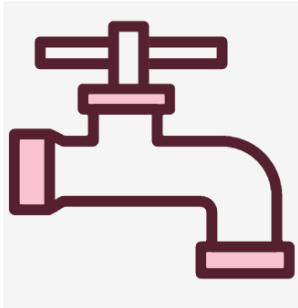
1 \* 1 \* 1 ... 200 times

## Sum up to Twenty

CLEAR GRID

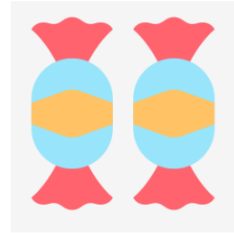


Identify and draw this image?



What is this image?

1. MILLE FEUILLE
2. CANDY
3. GUMBALLS
4. ORANGE JUICE



Name the animal.



What is this image?




Identify and draw this image?



Match the columns:

1. turkey 1. 

2. gander 2. 

3. crow 3. 

Which color is this?

1. black
2. aqua
3. red
4. lime



Which animal is this?

1. PIG
2. CROCODILE
3. PENGUIN
4. SPOUTING WHALE



```
1 AM.add(5, -4, 9, -2)
```

$$5 - 4 + 9 - 2$$

👤 1 👤 2 👤 3 👤 4 👤 5

👤 4 👤 3 👤 2 👤 1

👤 2 👤 3 👤 4 👤 5 👤 6 👤 7 👤 8 👤 9 👤 10

👤 9 👤 8

$$= 8$$

```
1 AM.count(61, 12)
```

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 61

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 👤 👤 👤 👤 👤 60

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 👤 👤 👤 👤 👤 59

...

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 👤 👤 16

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 👤 15

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 14

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 13

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 12

```
1 AM.count(-5, -8)
```

$$-5$$

$$-6$$

$$-7$$

$$-8$$

```
1 AM.add(7, 3, -4, -2)
```

$$7 + 3 - 4 - 2$$

👤 1 👤 2 👤 3 👤 4 👤 5 👤 6 👤 7

👤 8 👤 9 👤 10

👤 9 👤 8 👤 7 👤 6

👤 5 👤 4

$$= 4$$

```
1 AM.count(33, 45, 'lion')
```

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 33

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 👤 34

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 👤 35

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 👤 36

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 👤 37

...

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 43

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 44

👤 👤 👤 👤 👤 👤 👤 👤 ... 👤 👤 👤 45

## Addition, Multiplication and Division Are Related

CLEAR GRID

$$3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = \square$$

$$3 * 8 = \square$$

$$24 / 8 = \square$$

$$8 * 3 = \square$$

$$24 / 3 = \square$$

$$8 + 8 + 8 = \square$$

$$\square + \square = 27$$

$$\square = 27$$

$$\square = 3$$

$$\square = 27$$

$$\square = 9$$

$$\square = 27$$

$$6 * 6 = \square$$

$$6 ** 2 = \square$$

$$\log 36 \text{ on base } 6 = \square$$

$$2 * 2 * 2 * 2 * 2 * 2 = \square$$

$$2 ** 6 = \square$$

$$\log 36 \text{ on base } 2 = \square$$

CLEAR GRID

$$\square * \square = 81$$

$$\square = 81$$

$$\square = 4$$

$$\square = 64$$

$$\square = 64$$

$$\square = 3$$

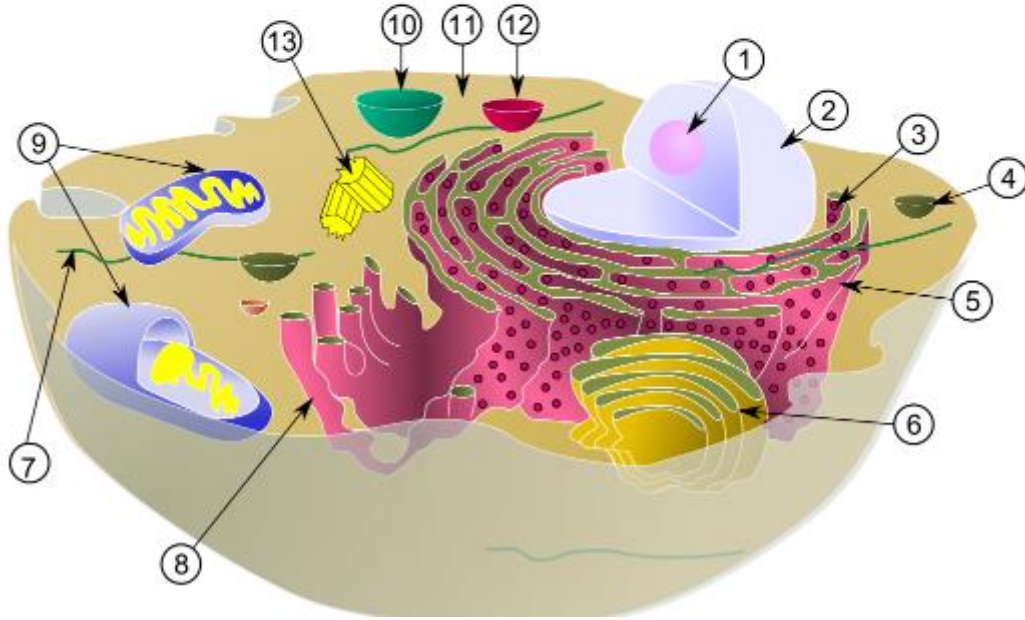
# Identify Organelles in a Cell

CLEAR GRID

Write and click the correct answer.

This part of the cell acts as a post office, packaging and sending out proteins.

- Nucleolus Nucleus Ribosome Vesicle Rough endoplasmic reticulum Golgi apparatus Cytoskeleton Smooth endoplasmic reticulum Mitochondrion Vacuole Lysosome Centrosome Cell membrane



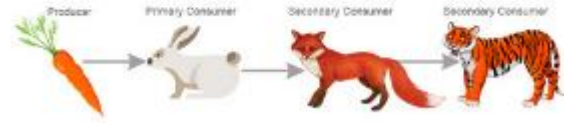
# Food Chains

CLEAR GRID

Write and click the correct answer.

Primary consumers eat producers.  
Who is a primary consumer?

- in Mouse Owl Carrabbit Fox Tiger Goat Rant Grasshopper Frog Snake Eagle producer primary consumer secondary consumer



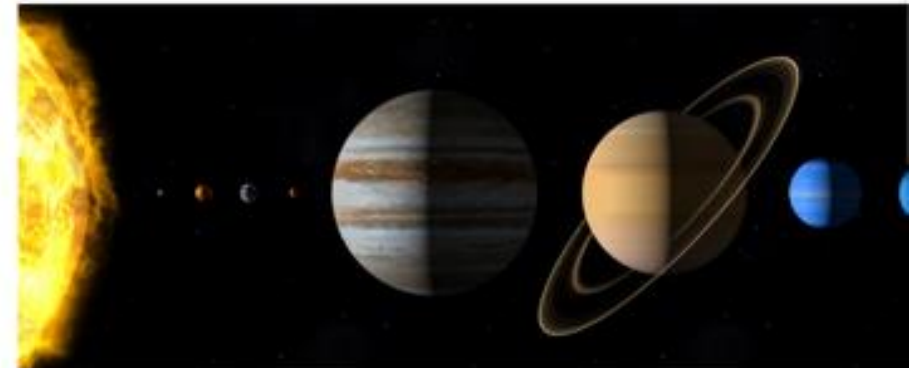
# Identify Planets

CLEAR GRID

Write and click the correct answer.

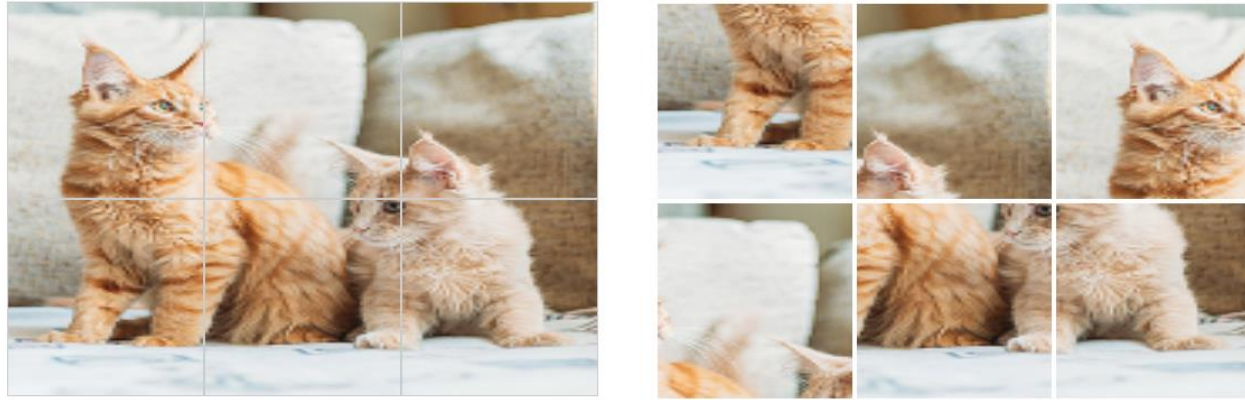
Three planets that have rings?

- Sun Mercury Venus Earth Mars Jupiter Saturn Uranus Neptune



# Game: Sortable Image

CLEAR GRID



# Game: Sort answer to a joke

CLEAR GRID

When does an Indian potato change its nationality ?



French it a When fry becomes

ANSWER

# Game: Sortable Grid



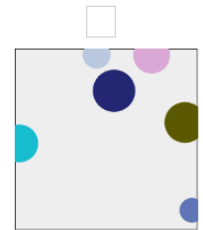
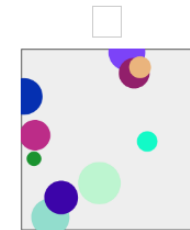
|    |    |    |
|----|----|----|
| 6  | 8  | 10 |
| 12 | 14 | 16 |
| 18 | 20 | 22 |
| 24 | 26 | 28 |

|    |    |    |
|----|----|----|
| 18 | 10 | 14 |
| 32 | 28 | 30 |
| 22 | 20 | 26 |
| 12 | 16 | 24 |

Count Dancing Balls

CLEAR GRID

Total



# Game: Similar or Different

CLEAR GRID

Similar:

- four legs
- animals

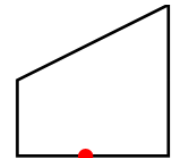
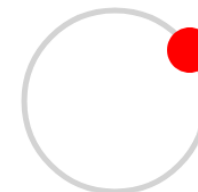
Different:

- carnivorous, herbivorous
- wild, wild and pet



# Find the Speed

CLEAR GRID



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## Game: Sort Sentences

CLEAR GRID

My his in is office father

ANSWER

## Game: Rewrite a Sentence

CLEAR GRID

ym dad is my eprsu heor

## Game: Read a Joke (Words)

CLEAR GRID

My brother came back from school all motivated because he said he would be following a new diet from that day. We didn't really give it much thought until my brother really started eating his homework for dinner. When we stopped him and asked why he was doing that, he replied, "I was just trying to see how it tasted because my teacher said that the homework would be a piece of cake for me."

## Read a Puzzle and Answer

CLEAR GRID

Why can't you take a picture of a pirate with a wooden leg?

Because a wooden leg doesn't take pictures.

Longest Words  
Shortest Words

## See, Hear and Make Words

Type Keyword Key length Missing letters Word Group

## Spelling Bee

Grade 3

CLEAR GRID

m v e

CLEAR GRID

t i o n

## Identify Numbers

CLEAR GRID

zero one two three four five six seven eight nine ten eleven twelve thirteen fourteen fifteen sixteen seventeen eighteen nineteen twenty thirty forty fifty sixty seventy eighty ninety hundred thousand

## Listen and Write Words

Grade 3

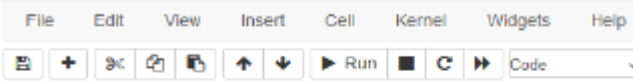
CLEAR GRID

info@xcelvations.com

+91 75699 33343

20  
800  
3  
3000





```

0. _problem_010_0010_one_digit_numbers_addition
1. _problem_010_0015_one_digit_numbers_addition_multiple_numbers
2. _problem_010_0020_one_digit_numbers_subtraction
3. _problem_010_0030_one_digit_numbers_multiplication
4. _problem_010_0040_one_digit_numbers_addition_multiplication_logical
5. _problem_010_0050_one_digit_numbers_division
6. _problem_0121._problem_020_0100_one_digit_multiple_numbers_expr_logical
7. _problem_0122._problem_030_0010_two_digit_numbers_addition
8. _problem_0123._problem_030_0020_two_digit_numbers_subtraction
9. _problem_0124._problem_030_0030_two_digit_numbers_multiplication
10. _problem_025._problem_030_0040 two digit numbers division
11. _problem_026. _problem_ 41. _problem_040_0060_rational_numbers_expr
12. _problem_027. _problem_ 42. _problem_00120_0005_decimal_numbers_arrange_in_order
13. _problem_028. _problem_ 43. _problem_050_0010_decimal_numbers_addition
14. _problem_029. _problem_ 44. _problem_050_0020_decimal_numbers_subtraction
15. _problem_030. _problem_ 45. _problem_050_0030_decimal_numbers_multiplication
16. _problem_031. _problem_ 46. _problem_050_0040_decimal_numbers_division
17. _problem_032. _problem_ 47. _problem_050_0050_decimal_numbers_addition_logical
18. _problem_033. _problem_ 48. _problem_050_0060_decimal_numbers_expr
19. _problem_034. _problem_ 49. _problem_050_0070_decimal_numbers_expr_logical
20. _problem_035. _problem_ 50. _problem_060_0010_irrational_numbers_addition
    36. _problem_ 51. _problem_060_0020_irrational_numbers_subtraction
    37. _problem_ 52. _problem_060_0030_irrational_numbers_multiplication
    38. _problem_ 53. _problem_060_0040_irrational_numbers_division
    39. _problem_ 54. _problem_060_0050_irrational_numbers_additional_1
    40. _problem_ 55. _problem_060_0060_irrational_numbers_expr
    56. _problem_060_0070_irrational_numbers_expr_logical

```

```
In [12]: 1 ke.getRandomProblem(problem_type =30)
```

Out[12]: 32 + 39 \_\_\_\_\_ 65 + 44/22  
A. is less than

B. is more than

C. is equal to

D. can't say

```
In [13]: 1 ke.printAnswer()
```

Out[13]: B. is more than

```
In [14]: 1 ke.printSolution()
```

Out[14]:

**Left Hand Side**

= 32 + 39

If the first integer has no sign, it means it is positive.

= +32 + 39

Write sum of all positive integers together and negatives separately together:

= 71

**Right Hand Side**

= 65 + 44/22

= 65 + 2      simplify division 44/22 = 2

If the first integer has no sign, it means it is positive.

= +65 + 2

Write sum of all positive integers together and negatives separately together:

= 67

**Therefore,**

LHS = 71

RHS = 67

LHS is more than RHS





File Edit View Insert Cell Kernel Widgets Help

Code

In [1]: 1 from xv.kids.managers import LearnWordsManager

In [2]: 1 ke = LearnWordsManager()  
2 ke

In [3]: 1 ke.printProblemTypes()

- 0. \_problem\_random\_spellings
- 1. \_problem\_leading\_word\_spellings
- 2. \_problem\_trailing\_word\_spellings

In [4]: 1 ke.getRandomProblem(problem\_type = 0)

Out[4]:

- 1. #####
- 2. #####
- 3. #####
- 4. #####

**deplorable** ( ): noun  
1. **meaning:** A person or thing that is to be deplored.  
2. **meaning:** (US politics) A Trumpist conservative, in reference to a 20 deplorables".

In [5]: 1 ke.printAnswer()

- Out[5]:
- 1. **deplorable:** *di-plo-ra-bul*
  - 2. **likable:** *like-a-bul*
  - 3. **vegetable:** *vedge-ta-bul*
  - 4. **objectionable:** *ob-jec-shu-na-bul*

**deplorable** ( ): noun: adjective  
1. **meaning:** Deserving strong condemnation; shockingly bad, wretched  
**example:** Poor children are often accused of having deplorable manne society treats them.  
2. **meaning:** Lamentable, to be felt sorrow for, worthy of compassion.  
**example:** We were all saddened by the deplorable death of his son.

In [6]: 1 ke.printSolution()

- Out[6]:
- 1. **deplorable:** *di-plo-ra-bul*
  - 2. **likable:** *like-a-bul*
  - 3. **vegetable:** *vedge-ta-bul*
  - 4. **objectionable:** *ob-jec-shu-na-bul*

**likable**: adjective  
1. **meaning:** Capable of being liked.  
**example:** I suppose he's likable; why shouldn't he be?  
2. **meaning:** (of a person) Having qualities tending to result in being lik  
**example:** She's a naturally likable person, with lots of friends.

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In [4]: 1 ke.getRandomProblem(problem\_type = -1)

Out[4]: Match the followings:

Sentences:

- (i) She figured out the solution immediately, **as sharp as a tack**.
- (ii) He's **as sharp as a tack** when it comes to solving problems.
- (iii) Her mind is still **as sharp as a tack** even at her age.

Meaning:

- (c) It means she remains mentally alert and intelligent.
- (a) It means he is clever and quick-witted.
- (b) It means she is very quick-thinking.

In [5]: 1 ke.printAnswer()

- Out[5]:
- (i) - (b)
  - (ii) - (a)
  - (iii) - (c)

In [6]: 1 ke.printSolution()

Out[6]: **As sharp as a tack** means **very clever or quick-witted**.

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Code

- 0. \_problem\_fill\_in\_the\_blanks\_question
- 1. \_problem\_interchanged\_words
- 2. \_problem\_put\_letters\_in\_order
- 3. \_problem\_put\_sentence\_in\_order
- 4. \_problem\_put\_paragraph\_in\_order
- 5. \_problem\_insert\_a\_sentence

In [4]: 1 ke.getRandomProblem(problem\_type = 0)

Out[4]: Fill in the blanks with the given words. Change the form of words if necessary.  
**coats, hats, frogs**  
Where do \_\_\_\_\_leave their \_\_\_\_\_and \_\_\_\_\_?  
In the croakroom.  
**coats, hats, frogs**

1 ke.listen()

In [5]: 1 ke.printAnswer()

Out[5]: Where do **frogs** leave their **hats** and **coats**?  
In the croakroom.

Problem Template: \_problem\_fill\_blanks

Out[5]:

Fill in the blanks.

**leopards, hyla, humans, whales**

\_\_\_\_\_ are fashionistas with stylish spots, and they love to take catnaps in trees.

A type of tree frog with sticky toes

\_\_\_\_\_ are like the architects of the Earth, building incredible things and telling stories that make us laugh and cry.

\_\_\_\_\_ are the giants of the ocean, and some are so big they make a school bus look tiny!

**leopards, hyla, humans, whales**

In [6]: 1 ke.printAnswer()

Out[6]: **Leopards** are fashionistas with stylish spots, and they love to take catnaps in trees.

A type of tree frog with sticky toes

**Humans** are like the architects of the Earth, building incredible things and telling stories that make us laugh and cry.

**Whales** are the giants of the ocean, and some are so big they make a school bus look tiny!

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- Case study: Grade 2
  - <https://xcelvations.com/static/pdfs/grade2-a-case-study.pdf>
- Sample online learning tools
  - [http://127.0.0.1:9090/learn\\_online](http://127.0.0.1:9090/learn_online)
- Course details
  - [http://127.0.0.1:9090/courses#kids\\_grades](http://127.0.0.1:9090/courses#kids_grades)



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