GOVERNMENT DEGREE COLLEGE

SERILINGAMPALLY, DIST. RANGAREDDY

DEPARTMENT OF MATHEMATICS

STUDY PROJECTS FOR THE ACADEMIC YEAR 2020-2021

1. A Study project on "Uses of Mathematics in Daily Life"

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Examples of Math Connections to Daily life

Managing Money

Your teen will learn skills in algebra class that will help them with money. One important skill they will learn is how to calculate interest and compound interest. Your teen can use this skill to manage their money now and when they grow up. This skill also will help them pick the best bank account. It will also help them decide which credit card is best to have. People who take out loans need to understand interest. It will also help them figure out the best ways to save and invest money.

Recreational Sports

Geometry and trigonometry can help your teens who want to improve their skill in sports. It can help them find the best way to hit a ball, make a basket or run around the track. Basic knowledge of math also helps keep track of sports scores

Home Decorating and Remodeling

Calculating areas is an important skill. It will be useful for your teen in remodeling future homes and apartments. It will help your teen find how much paint they need to buy when repainting a room. It is also an important skill for anyone who wants to install new tiles in a bathroom or a kitchen. Knowing how to calculate perimeters can help your child when deciding how much lumber to buy for floor or ceiling trim.

Cooking

People use math knowledge when cooking. For example, it is very common to use a half or double of a recipe. In this case, people use proportions and ratios to make correct calculations for each ingredient. If a recipe calls for 2/3 of a cup of flour, the cook has to calculate how much is half or double of 2/3 of a cup. Then the cook has to represent the amount using standard measures used in baking, such as ¼ cup, 1/3 cup, ½ cup or 1 cup.

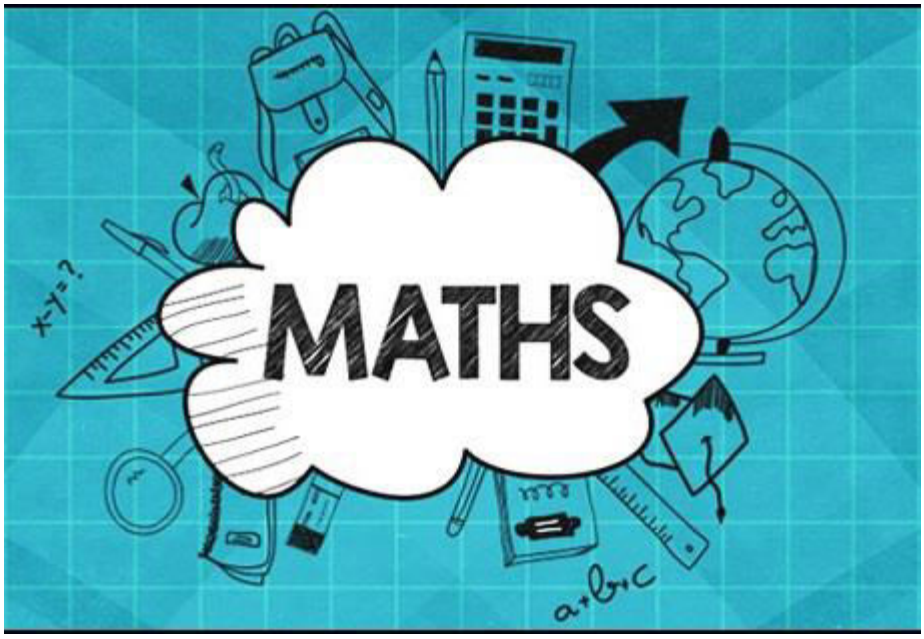
Shopping

Your teen will use math when buying different items. When buying a new computer, your child will need to figure out which store offers the best price or best financing. Math is useful in finding the best deal for food items. For example, your teen will need to decide which pack of soda to buy when given a choice of 20 oz., 2-liter, 12 pack, or 24-pack. Stores often have sales that give a percentage off an original price. It is helpful for people to know how to figure out the savings. This math skill is very useful because it helps us calculate discounts so we can buy an item for the best price offered.

Note. Partial content of this web page is adapted from Making Connections: Helping Your Teen With the Choices Ahead brochure (Harackiewicz, Hyde & Hulleman, n.d.) and Making Connections: Helping Your Teen Find Value in School brochure (Hulleman, Harackiewicz & Hyde, 2007). Please refer to the links to the brochures under the useful links for parents tab if you would like access to the full brochures.

Examples of Mathematics in Everyday Life

According to some people, maths is just the use of complicated formulas and calculations which won't be ever applied in real life. But, maths is the universal language which is applied in almost every aspect of life. Yes! You read it right; basic mathematical concepts are followed all the time. You would be amazed to see the emerging of maths from unexpected situations.



Let's read further to know the real-life situations where maths is applied

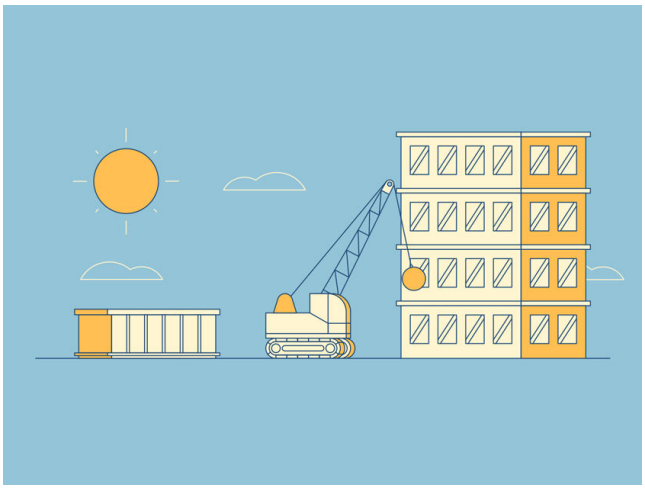
1. Making Routine Budgets

How much should I spend today? When I will be able to buy a new car? Should I save more? How will I be able to pay my EMIs? Such thoughts usually come in our minds. The simple answer to such type of question is maths. We prepare budgets based on simple calculations with the help of simple mathematical concepts. So, we can't say, I am not going to study maths ever! Everything which is going around us is somehow related to maths only.

Application:

- Basic mathematical operations (addition, subtraction, multiplication, and division)
- Calculation of percentage
- Arithmetic calculations

2. Construction Purpose

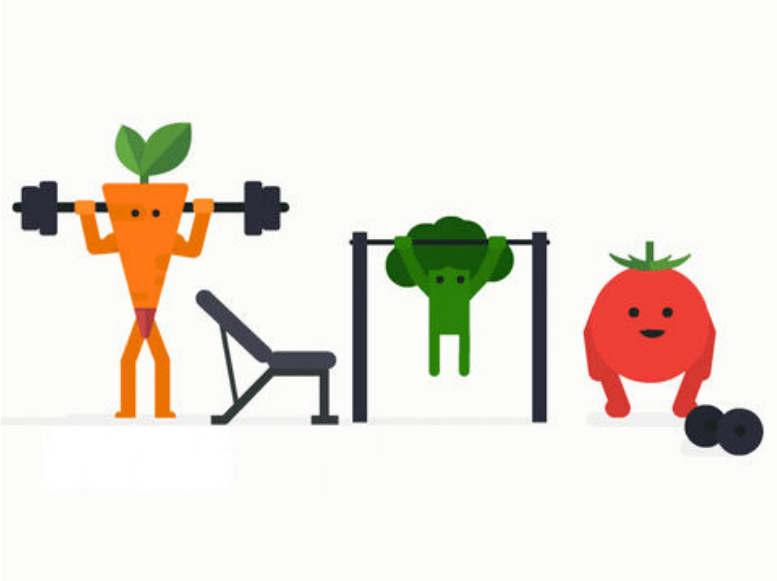


You know what, maths is the basis of any construction work. A lot of calculations, preparations of budgets, setting targets, estimating the cost, etc., are all done based on maths. If you don't believe, ask any contractor or construction worker, and they will explain as to how important maths is for carrying out all the construction work.

Application:

- Preparing budgets
- Taking measurements
- Estimating the cost and profit
- Arithmetic calculations
- Geometry
- Calculus and Statistics
- Trigonometry

3. Exercising and Training



I should reduce some body fat! Will I be able to achieve my dream body ever? How? When? Will I be able to gain muscles? Here, the simple concept that is followed is maths. Yes! based on simple mathematical concepts, we can answer to above-mentioned questions. We set our routine according to our workout schedule, count the number of repetitions while exercising, etc., just based on maths.

Application:

- Basic Mathematical Operations (additions, subtraction, multiplication, and division)
- Logical and Analogical Reasoning

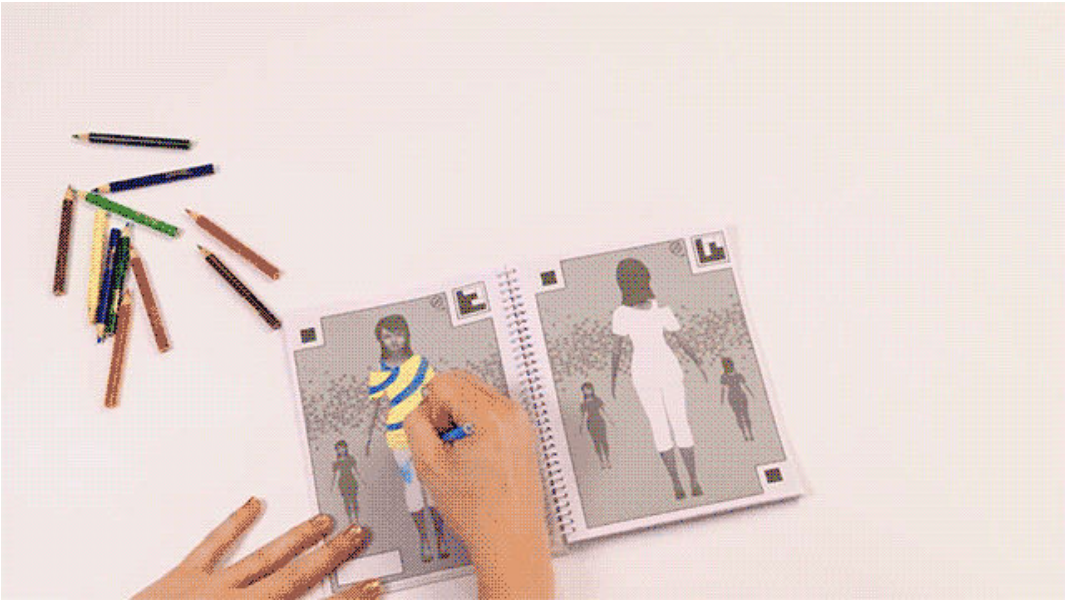
4. Interior Designing

Interior designing seems to be a fun and interesting career but, do you know the exact reality? A lot of mathematical concepts, calculations, budgets, estimations, targets, etc., are to be followed to excel in this field. Interior designers plan the interiors based on area and volume calculations to calculate and estimate the proper layout of any room or building. Such concepts form an important part of maths.

Application:

- Geometry
- Ratios and Percentages
- Mathematical Operations
- Calculus and Statistics

5. Fashion Designing



Just like the interior designing, maths is also an essential concept of fashion designing. From taking measurements, estimating the quantity and quality of clothes, choosing the color theme, estimating the cost and profit, to produce cloth according to the needs and tastes of the customers, maths is followed at every stage.

Application:

- Basic Mathematical Operations
- Rations and Percentages
- Geometry

6. Shopping at Grocery Stores and Supermarkets

The most obvious place where you would see the application of basic mathematical concepts is your neighborhood grocery store and supermarket. The schemes like ‘Flat 50% off’, ‘Buy one get one free’, etc., are seen on most of the stores. Customers visit the stores, see such schemes, estimate the quantity to be bought, the weight, the price per unit, discount calculations, and finally the total price of the product and buy it. The calculations are done based on basic mathematical concepts. Thus, here also, maths forms an important part of our daily routine.

Application:

- Mathematical Operations
- Ratio and Percentage
- Algebra

7. Cooking and Baking

In your kitchen also, the maths is performed. For cooking or baking anything, a series of steps are followed, telling us how much of the quantity to be used for cooking, the proportion of different ingredients, methods of cooking, the cookware to be used, and many more. Such are based on different mathematical concepts. Indulging children in the kitchen while cooking anything, is a fun way to explain maths as well as basic cooking methods.

Application:

- Mathematical Algorithm
- Mathematical Operations
- Ratios and Proportions

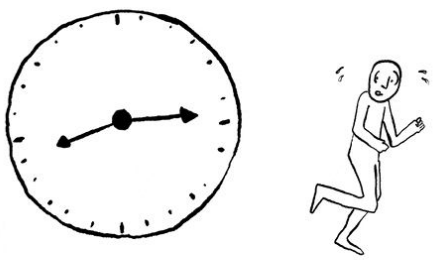
8. Sports

Maths improves the cognitive and decision-making skills of a person. Such skills are very important for a sportsperson because by this he can take the right decisions for his team. If a person lacks such abilities, he won't be able to make correct estimations. So, maths also forms an important part of the sports field.

Application:

- Probability
- Mathematical Operations and Algorithm
- Logical Reasoning
- Game Theory

9. Management of Time



Now managing time is one of the most difficult tasks which is faced by a lot of people. An individual wants to complete several assignments in a limited time. Not only the management, some people are not even able to read the timings on an analog clock. Such problems can be solved only by understanding the basic concepts of maths. Maths not only helps us to understand the management of time but also to value it.

Application:

- Logical Reasoning
- Basic Mathematical Operations
- Reasoning
- **10. Driving**

'Speed, Time, and Distance' all these three things are studied in mathematical subjects, which are the basics of driving irrespective of any mode of transportation. Maths helps us to answer the following question;

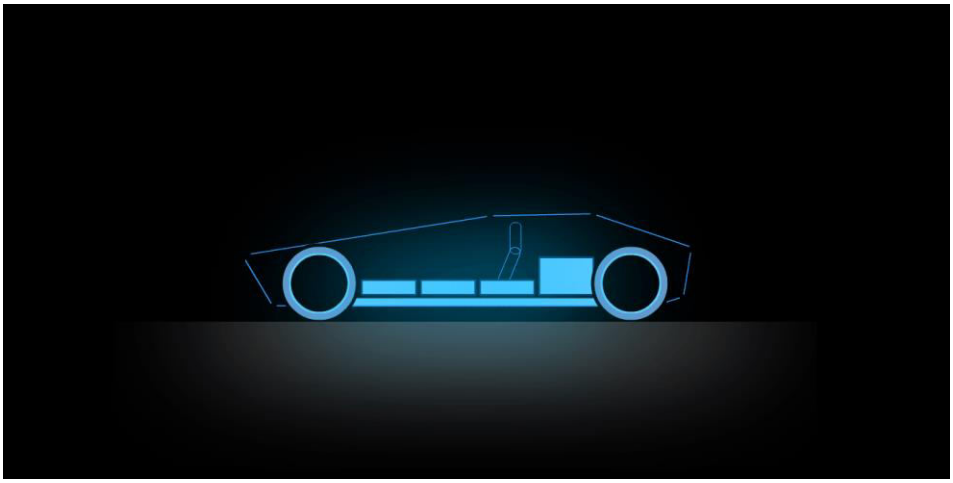
- How much should be the speed to cover any particular distance?
- How much time would be taken?
- Whether to turn left or right?
- When to stop the car?
- When to increase or decrease the speed?

Application:

- Logical reasoning

- Numerical Reasoning
- Mathematical Operations

11. Automobiles Industry



The different car manufacturing companies produce cars based on the demands of the customers. Every company has its category of cars ranging from microcars to luxuries SUVs. In such companies, basic mathematical operations are being applied to gain knowledge about the different demands of the customers.

Application:

- Mathematical Operations
- Ratios and Proportions
- Statistics
- Geometry
- Algorithm

12. Computer Applications

Ever wondered how a computer works? How easily it completes every task in a proper series of action? The simple reason for this is the application of maths. The fields of mathematics and computing intersect both in computer science. The study of computer applications is next to impossible without maths. The concepts like computation, algorithms, and many more forms the base for different computer applications like powerpoint, word, excel, etc. are impossible to run without maths.

Applications:

- Computation
- Algothirm
- Coding Methods
- Cryptography

13. Planning a Trip

We all are bored of our monotonous life and we wish to go for long vacations. For this, we have to plan things accordingly. We need to prepare the budget for the trip, the number of days, the destinations, hotels, adjusting our other work accordingly, and many more. Here comes the role of the maths. Basic mathematical concepts and operations are required to be followed to plan a successful trip.

Application:

- Budgeting
- Algebra
- Calculus
- Mathematical Operations

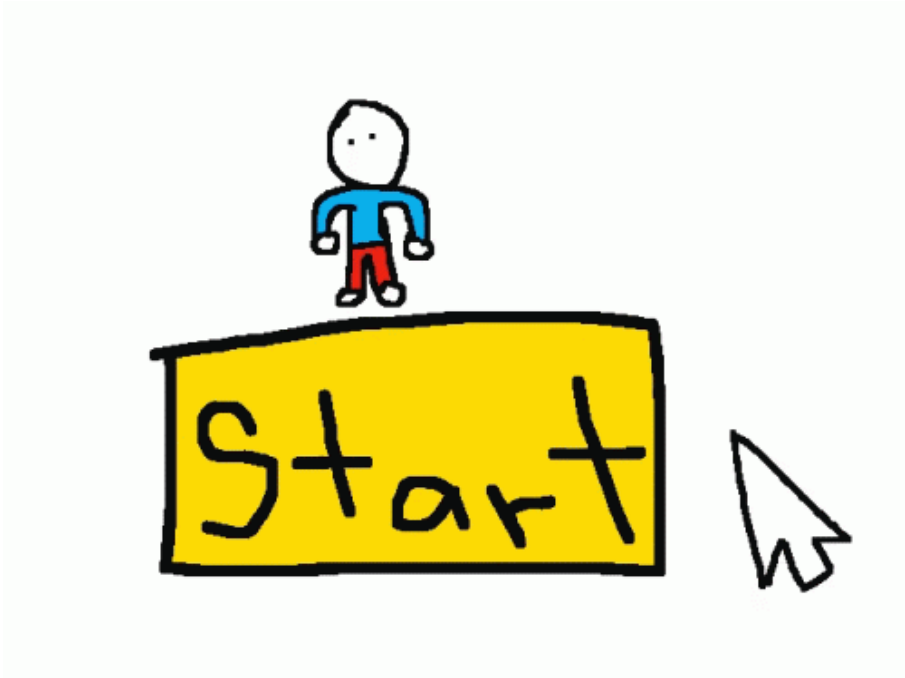
14. Hospitals

Every Hospital has to make the schedule of the timings of the doctors available, the systematic methods of conducting any major surgery, keeping the records of the patients, records of success rate of surgeries, number of ambulances required, training for the use of medicines to nurses, prescriptions, and scheduling all tasks, etc. All these are done based on Mathematical concepts.

Application:

- Budgeting
- Operations
- Ratios and Proportions
- Body Mass Index

15. Video Games



Playing video games is one of the most favorite entertainment activity done all over the world, irrespective of the fact that whether you are a kid or an adult. Students usually skip their maths classes to play video games. But, do you know here also they are learning maths? Here, they learn about the different steps and techniques to be followed to win any game. Not only while playing, but the engineers who introduce different games for people also follow the different mathematical concepts.

Applications:

- Game Theory
- Probability
- Computation
- Logical Reasoning
- Geometry
- Algebra
- Calculus
- Statistics

16. Weather Forecasting

The weather forecasting is all done based on the probability concept of maths. Through this, we get to know about the weather conditions like whether it's going to be a sunny day or rainfall will come So, next time you plan your outing, don't forget to see the weather forecasting.

Application:

- Probability
- Statistics

17. Base of Other Subjects

Though maths is itself a unique subject. But, you would be surprised to know that it forms the base for every subject. The subjects like physics, chemistry, economics, history, accountancy, statistics, in fact, every subject is based upon maths. So, next time

you say, “I’m not going to study this maths subject ever!” remember, this subject will not going to leave you ever.

Application:

- Mathematical Operations
- Budgeting
- Operations Research
- Algebra
- Linear Programming
- Algorithm
- Ratios and Proportions

18. Music and Dance

Listening to music and dancing is one of the most common hobbies of children. Here also, they learn maths while singing and learning different dance steps. The coordination in any dance can be gained by simple mathematical steps.

Application:

- **Mathematical Operations**

19. Manufacturing Industry

The part of maths called ‘Operations Research’ is an important concept which is being followed at every manufacturing unit. This concept of maths gives the manufacturer a simple idea of performing the number of tasks under the manufacturing unit like,

- What quantity to be produced?
- What methods are to be followed?
- How to increase production?
- How the cost of production can be reduced?
- Removing unnecessary tasks.

- Following methods like target costing, ABC costing, cost-profit budgeting, and many more.

Application:

- Operations Research
- Statistics
- Ratios and Probability
- Algebra

20. Planning of Cities

Urban planning all includes the concepts of budgeting, planning, setting targets, and many more which all forms the part of mathematics. No activity is possible without maths.

Application:

- Trigonometry
- Algebra
- Linear Programming
- Operations Research

21. Problem-solving skills

Problem-solving skills is one of the most important skills which every individual should possess to be successful in life. Such skills helps the individual in taking correct decisions in life, let it be professional or personal. This is all done when the person has the correct knowledge of basic mathematical concepts.

Application:

- Logical Reasoning
- Mathematical Reasoning
- Basic Mathematical Operations

22. Marketing

The marketing agencies make the proper plans as to how to promote any product or service. The tasks like promoting a product online, use of social media platforms, following different methods of direct and indirect marketing, door to door sales, sending e-mails, making calls, providing the number of schemes like 'Buy one get one free', 'Flat 50% off', offering discounts on special occasions, etc. are all done on the basis of simple mathematical concepts. Thus, maths is present everywhere.