

6

Stepwise Thinking

Learning Objectives



In this chapter, you will be learning about:

- Stepwise thinking
- Reasoning
- Problem solving

Stepwise thinking means thinking step by step. We do many things in daily life where we go step by step. Let us write down the steps involved in preparing a play for the annual function of your school.

Step 1: Selecting a play.

Step 2: Collecting the names of the students who are interested in taking part in the play.

Step 3: Assigning the roles to the students according to the characters in the play.

Step 4: Getting costumes ready for the students.

Step 5: Practicing the play under the supervision of the teacher.

Step 6: Checking whether the costumes fit the students a few days before the play. If changes are required, then, telling the same to the tailor.

Step 7: Carrying out a full costume rehearsal before the final day.

Step 8: On the final day, performing the play in front of the teachers, students, parents and other invited guests.

Stepwise thinking helps us to complete a task or solve a problem easily. This is because we can divide the entire task or problem into steps. Working becomes easy as we solve one step at a time.

REASONING AND PROBLEM SOLVING

In daily life, we come across many situations where we have to take a decision. While taking a decision, think. This act of thinking to arrive at a decision is called **reasoning**. It is based on the situation and other factors as well.

For example, think of a situation where you are invited to the birthday party of your best friend but your younger brother is not well. Also, there is no one at home.

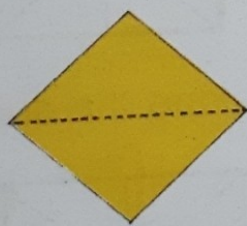
So, here you have to think as well as reason. What is more important, to go the party or take care of your brother?
As you grow older, you will come across many mathematical questions which are based on reasoning. These questions help us in enhancing our thinking and reasoning ability. Problem solving, as its name suggests, means finding solution to a problem. For example, your school van driver has informed you that he will not be coming to pick you up the next day. Your parents are not in town and your grandparents cannot drop you to school. What will you do in such a situation? You can call your friend who lives nearby and who goes to school in his own vehicle. You can request him to pick you up on his way to the school.

CASE STUDIES

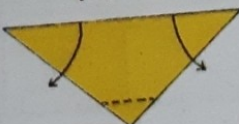
Let us now take a few examples.

Example 1: You are aware of some different shapes. Let us make a 'dog' using different shapes. Here are the steps:

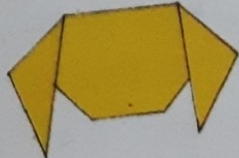
Step 1: Take an origami sheet and fold it as shown.



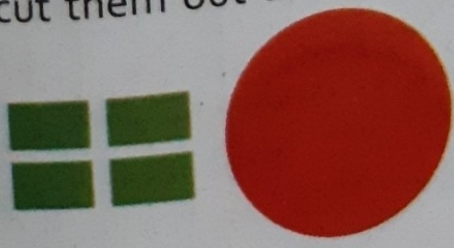
Step 2: Join the opposite corners for ears.





Step 3: Again fold for chin.






Step 4: Make a circle and some rectangles on the other origami sheets and cut them out as shown.



Step 5: Paste the  body to the head as shown.

Step 6: Paste  pieces on the circular body.

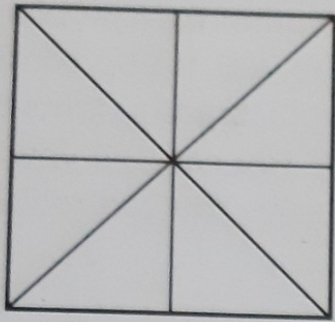
Step 7: Draw the  eyes,  nose and  mouth.

Step 8: Now fix this 'dog' on a sheet of paper.

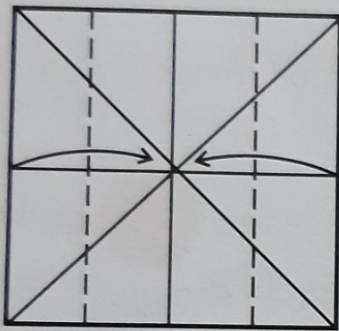


Example 2: Let us make a boat from a square piece of colored paper.

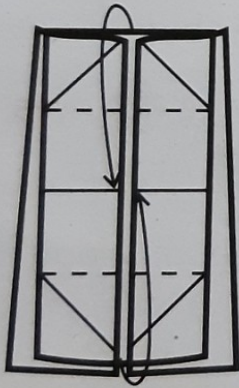
Step 1: Take a square-shaped paper and fold it in half several times to make these creases.



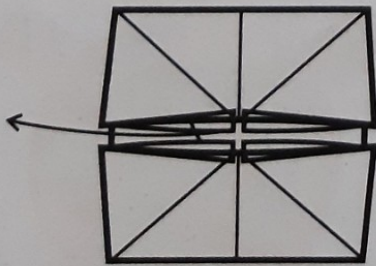
Step 2: Fold into Leaf-Door base.



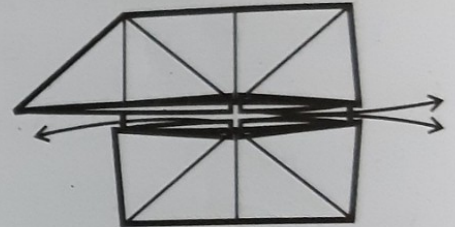
Step 3: Fold along the dotted lines.



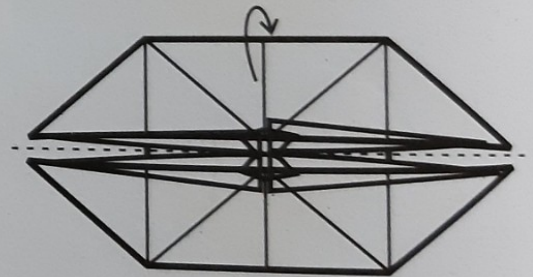
Step 4: Pull out this point.



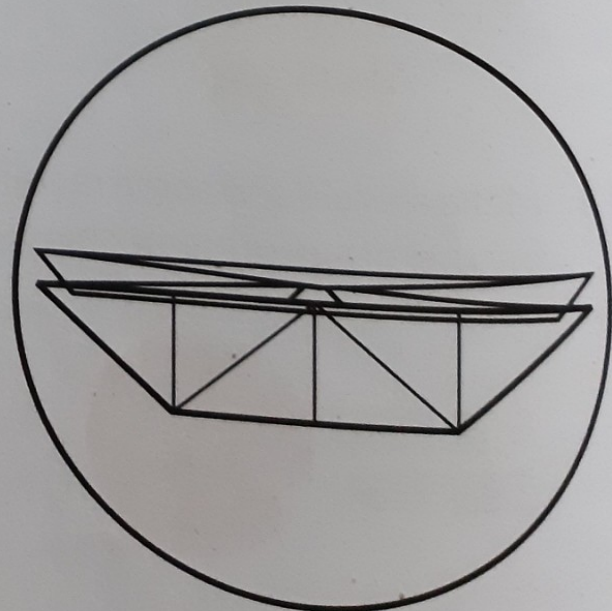
Step 5: Pull out the other points.



Step 6: Fold along the dotted marks.



This is Double-Boat Base.



Example 3: Planning a family outing on a Sunday.
Let us first write down the steps involved.

Step 1: Write down the details of the place, the date, timings, number of members going and number of vehicles required.

Step 2: Write down the items required like food, rugs (for sitting on the grass), newspapers, sport material and other items.

Step 3: List down the precautions to be followed by all the members.

Step 4: Write down the names of the activities you will do there to enjoy your outing.

Now, these steps can be further broken down to manage this outing easily.

Step 1: Main details:

- i. Choose a place which is well known for family outing.
- ii. Discuss with all and fix a date and time which suits all the members.
- iii. Check on the mode of travel, and also make sure all the members can sit comfortably.

Step 2: List down everything:

- i. List down all the food items, like snacks, main course items and water bottles.
- ii. List down other items which are needed there, that is, sheets, newspapers, tissue papers, paper plates, glasses, spoons, badminton, football, cricket kit, etc.

Step 3: What all precautions to be followed there:

- i. List down all the precautions to be followed there, like wearing full sleeve clothes to avoid mosquito bite.
- ii. All wastage should be dropped into the dustbins.
- iii. Children should not wander off from where the family members are sitting.

Step 4: Activities for fun:

- i. Think of outdoor games and take the materials accordingly.
- ii. In case of music, take CDs or pen drives which contain songs that you want to play there.

In fact, stepwise thinking helps in looking at a task minutely. By doing so, we can pay attention to each and everything which is involved in a task and take care of it in advance.

Similarly, reasoning and problem-solving help in looking at a task from the very beginning. It inculcates a habit of analysing any task, howsoever difficult it may be. In turn, it makes it possible to complete the task with efficiency as one can identify the problems in advance.



Recall Time

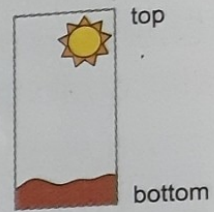
- ◆ Stepwise thinking helps us to complete a task or solve a problem easily.
- ◆ Reasoning is based on the situation and other factors as well.
- ◆ Problem-solving, as its name suggests, means finding a solution to a problem.

Practice time

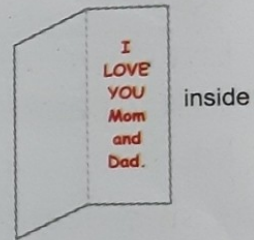


A. Here are steps to make a greeting card. Match the pictures given on the left with the steps given on the right.

1. Spread the paper on your table.



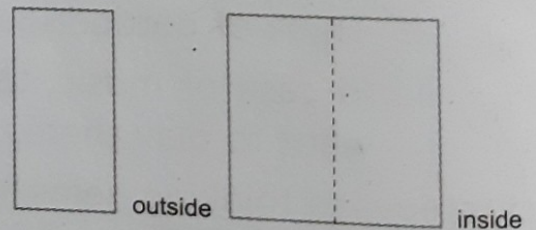
2. Fold the paper. First work on the **outside** of the paper, and then, on the **inside**.



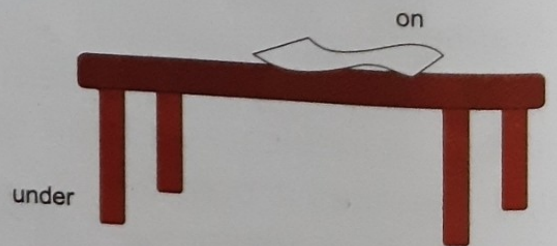
3. Draw a sun on the **top** right-hand corner. At the **bottom**, draw ground.



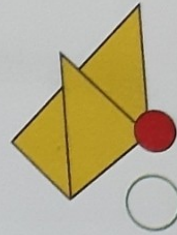
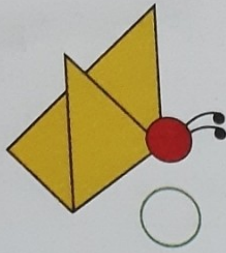
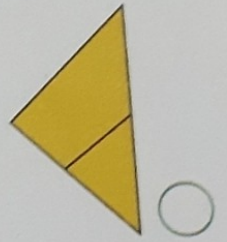
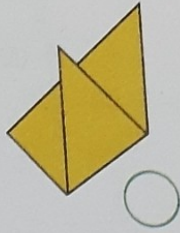
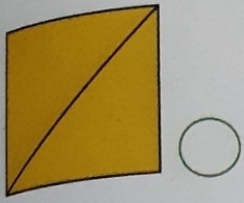
4. Draw a picture of yourself. Now, draw birds flying **above** your picture and green grass **below** your picture. Next, draw a flower on the left side.



5. Now, open the card and write the following inside: I LOVE YOU Mom and Dad.



B. Observe the following steps to make a butterfly using Origami sheets and bindis. Arrange these steps in order using numbers. Mark the first step as number 1.



C. The steps of few daily activities are given below in a jumbled order. Number them in correct order.

1. Brushing your teeth

Stop

Rinse mouth

Open tap

Apply toothpaste on brush

Replace brush

Take brush from shelf

Start

Rinse mouth

Brush teeth

Clean brush and close tap

2. Taking bath

- Turn on the shower
- Take off your clothes
- Put on your clothes
- Wipe yourself dry
- Get under the shower
- Turn off the shower

3. Activities of a student before he leaves for school

- He leaves for school
- Checks his homework
- Puts on his school dress
- Looks at his watch
- Takes his breakfast
- Gets up and has a bath

Lab Activity

Students can be encouraged to draw flowcharts in MS Word on various real life activities like ticket-booking, generation of report card of students etc.

Note to the Teacher

- ❖ Help the students understand the concept of drawing flowcharts and how it can develop their logical thinking. This might help them not only in computers but in planning their day-to-day activities.

