

NCERT SOLUTIONS

CLASS - 5th



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Class : 5th
Subject : Maths
Chapter : 14
Chapter Name : How Big? How Heavy?

Q1 Now make a guess. Do you think the volume of 10 five-rupee coins will be more than that of 10 marbles?

Guess the volume of each of these:

A ball is nearly _____ marbles.

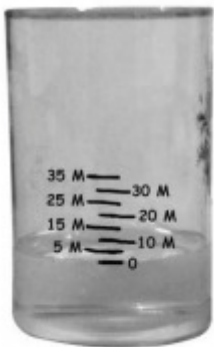
An eraser is nearly _____ marbles.

A lemon is nearly _____ marbles.

A pencil is nearly _____ marbles.

A potato is nearly _____ marbles.

Answer.



A ball is near 2 marbles.

An eraser is near 2 marbles.

A lemon is near 3 marbles.

A pencil is near 2 marbles.

A potato is near 4 marbles.

Page : 188 , Block Name : Your Measuring Glass

Q2 Now make your own measuring glass using 35 marbles. Take a glass of water and mark the level of water as 0 . Then put in 5 marbles and mark the level of water as 5 M. Again drop 5 marbles and mark the level of water as 10 M. Likewise make the markings for 15 M, 20 M, 25 M, 30 M and 35 M.

Answer.

Name of the things	Its volume (nearly how many marbles)
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Matchbox with sand	9
A stone	5
An orange	18
An apple	17

Page : 188 , Block Name : Your Measuring Glass

Q1 Use your measuring bottle to find out:

- a) What is the volume of 6 marbles? _____ mL.
b) What is the volume of 16 one-rupee coins? _____ mL.

Now solve these in your mind.

- c) The volume of 24 marbles is _____ mL.
d) The volume of 32 one-rupee coins? _____ mL.
e) Mollie puts some five-rupee coins in the measuring bottle.

How many coins has she put in it:

- (i) if 30 mL water is pushed up? _____
(ii) if 60 mL water is pushed up? _____

Answer. a) 7 ml.

b) 18 ml.

c) 28 ml.

d) 36ml.

e) (i) 27 coins.

e) (ii) 54 coins.

Page : 189 , Block Name : Which Has More Volume?

Q2 First guess and then use your measuring bottle to find out the volume in mL of some other things.

Answer.

Things	Volume (in ml)
A scale	5
A tumbler	20
A pair of scissors	7
A pen	5

Page : 190 , Block Name : Which Has More Volume?

Q3 Guess how many litres of water your body will push up?

Answer. About 40 L.

Page : 190 , Block Name : Which Has More Volume?

Q1 A stage (platform) is made with 5 Math-Magic books. The volume of this stage is the same as _____ cm cubes.

Answer. $520 \times 5 = 2600$ cm cubes.

Page : 190 , Block Name : Practice Time

Q2 Guess the volume of these things in cm cubes.

A matchbox is about _____ cm cubes.

A geometry box is about _____ cm cubes.

An eraser is about _____ cm cubes.

How will you check your guess? Discuss.

Answer. Matchbox -

Length = 6 cm

Breadth = 4 cm

Height = 1 cm

Hence, volume = $6 \times 4 \times 1 = 24$ cubic cm

Geometry box -

Length = 16 cm, Breadth = 6 cm, Height = 1 cm

Hence, Volume = $16 \times 6 \times 1 = 96$ cubic cm

Page : 190 , Block Name : Practice Time

Q1 Tanu is making a stage with matchbox. She first puts 14 matchboxes like this in the first layer



She makes 4 such layers and her stage looks like this

She used _____ matchboxes to make this stage.

Answer. 56

Page : 191 , Block Name : Matchbox play

Q2 The volume of one matchbox is the same as 10 cm cubes. Then the volume of this stage is same as _____ cm cubes.

Answer. Volume of 1 matchbox = 10 cubic cm.
Hence, volume of 56 matchboxes = $10 \times 56 = 560$ cubic cm.

Page : 192 , Block Name : Matchbox play

Q3 If all these cubes are arranged in a line, how long will that line be? ____ cm.

Answer. Missing

Page : 192 , Block Name : Matchbox play

Q4 Which has more volume — your Math-Magic book or Tanu’s platform?

Answer. Tanu’s platform has more volume.

Page : 192 , Block Name : Matchbox play

Q5 With your friends, collect many empty matchboxes of the same size. Measure the sides and write here.



Answer. It is 3cm wide and 5 cm long and 1 cm high.

Page : 192 , Block Name : Matchbox play

Q6 Use 56 matchboxes to make platforms of different heights. Fill this table.

	<i>How high is it?</i>	<i>How long is it?</i>	<i>How wide is it?</i>
Platform 1			
Platform 2			
Platform 3			

Answer.

	How high is it?	How long is it?	How wide is it?
Platform 1	2 matchboxes	7 matchboxes	4 matchboxes
Platform 2	4 matchboxes	14 matchboxes	1 matchboxes
Platform 3	1 matchboxes	8 matchboxes	7 matchboxes

Page : 192 , Block Name : Matchbox play

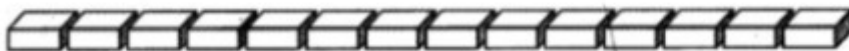
Q7 Make deep drawing of the platform you have made

Answer.

Platform 1



Platform 2



Platform 3



Page : 192 , Block Name : Matchbox play

Q1 Mohan arranged his matchboxes like this.



How many matchboxes did he use to make it? What is its volume in matchboxes? _____ matchboxes.

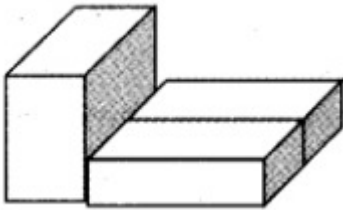
Answer. Mohan used 30 matchboxes($16 + 9 + 4 + 1 = 30$)

The volume is 30 matchboxes

Page : 193 , Block Name : Practice Time

Q2 Collect empty matchboxes. Arrange them in an interesting way. Make a deep drawing of it.

Answer.



Page : 193 , Block Name : Practice Time

Q1 a) How long is the side of your cube?

b) How many centimetre cubes can be arranged along its: Length? _____ Width? _____ Height?

c) Answer Thimpu's questions:

(i) To make the first layer on the table how many cm cubes will I use?

(ii) How many such layers will I need to make a paper cube?

d) So the total cm cubes = _____

e) The volume of the paper cube is same as _____ cm cubes.

Answer. (a) 7cm

(b) All sides are equal to 7 cm.

(c) (i) 49 cm

(c) (ii) 7 such layers.

(d) Missing

(e) 343 cubes

Page : 194 , Block Name : How Big Is Your Cube?

Q2 Anan made a big cube having double the side of your paper cube. How many of the your paper cubes will fit in it? Try doing it by collecting all the cubes made in your class.

Answer. Side of cube = $2 \times 7 = 14$ cm

We have arranged $2 \times 2 = 4$ paper cubes in first layer. And 2 layers of 4 paper cubes. Hence, we can arrange $4 \times 2 = 8$ cubes

Page : 195 , Block Name : How Big Is Your Cube?

Q1 What is your guess? Who is right?

Answer. Dinga is right.

Page : 195 , Block Name : Packing Cubes

Q2 How can Ganesh and Dinga test their guesses before packing the cubes in the boxes? Discuss with your friend.

Answer. Let us take the first box:

Length = 20 cm, width = 10 cm, Height = 6 cm

Hence, Volume = $20 \times 10 \times 6 = 1200$ cubic cm < 4000 cubic cm

Second box

Length = 11cm, width = 11 cm, height = 10 cm

Hence, volume = $11 \times 11 \times 10 = 1210$ cubic cm < 4000 cubic cm.

Third box

Length = 15 cm, width = 9cm, height = 10 cm

Hence, volume = $15 \times 9 \times 10 = 1350$ cubic cm < 4000 cubic cm.

The total volume = $1200 + 1210 + 1350 = 3760$

which is less than Dinga's cube.

Page : 195 , Block Name : Packing Cubes

Q1 Collect some old postcards. You can also use thick paper of size $14 \text{ cm} \times 9 \text{ cm}$. Fold the postcard along the width to make pipe-1. Join the ends with cello tape. Take another postcard and fold it along the length to make pipe 2. join the ends with tape.

1. Guess which pipe can take more sand inside it. Hold it on a plate and pour sand to check your guess. Was your guess correct? Discuss.

Answer. Pipe 2 can take more sand. This was confirmed during checking.

Page : 196 , Block Name : Which Pipe Fills More?

Q1 a) For 6 days, each person will need ?

Rice and flour – _____ g ?

Pulses – _____ g ?

Dried onions – _____ g

b) How much of fresh tomatoes should be dried for 6 days for 10 people?

c) What is the total weight of food (for 6 days) in each person s bag?

Answer. a) Rice and flour – $100 \text{ g} + 100 \text{ g} = 200 \text{ g}$

$= 6 \times 200 = 1200 \text{ g}$

Pulses – $\frac{1}{3}$ of weight of rice and flour

$= \frac{1}{3} \times 1200 = 400 \text{ g}$

Dried onions – $10 \times 6 = 60\text{g}$

b) $6 \times 10 \times 10 = 600\text{ g}$

c)

Item	Weight for 6 days
Rice and flour	1200 g
Pulses	400 g
Dried onions	60 g
Oil	300 g
Sugar	300 g
Milk powder	240 g
Tea	60 g
Dalia	240 g
Salt	30 g
Dried tomatoes	60 g
Total	2890 g

Page : 198 , Block Name : Trek To Gangotri

Q1 Can you guess the weight of the heaviest animal on this earth? No, it's not me. I weigh only 5000 kg!

It is the Blue Whale. Its weight is around 35 times more than me. So how many thousand kg does it weigh?

Answer. The weight of blue whale = $35 \times 5000 = 175000\text{ kg}$

Page : 198 , Block Name : How Heavy Am I?

Q2 Guess how many children of your weight will be equal to the weight of an elephant of 5000 kg.

Answer. Let the weight of a child = 40 kg

Then number of children equal to weight of an elephant = $5000 \div 40 = 125$

Page : 199 , Block Name : How Heavy Am I?

Q3 At birth, a baby elephant weighs around 90 kg. How much did you weigh when you were born? Find out. How many times is a baby elephant heavier than you were at birth?

Answer. Baby elephant's weight = 90 kg

My weight at the time of birth = 3kg so, baby elephant is 30 times heavier

Page : 199 , Block Name : How Heavy Am I?

Q4 If a grown up elephant eats 136 kg of food in a day then it will eat around _____ kg in a month.

Answer. Solution: Food in a day = 136 kg

Hence, food in a month = $136 \times 30 = 4080\text{ kg}$ and food in a year
= $4080 \times 12 = 48960\text{ kg}$

Page : 199 , Block Name : How Heavy Am I?

Q1 Shahid works in a bank. He sits at the cash counter. Whenever there are too many coins he does not count them. He just weighs them.

How many coins are there in a sack of 5 rupee coins if it weighs:

- a) 18 kg? _____
- b) 54 kg? _____
- c) 4500 g? _____
- d) 2 kg and 250 g? _____
- e) 1 kg and 125 g? _____

Answer. a) $18 \text{ kg} = 18 \times 1000 = 18000 \text{ g}$ weight of 1 coin = 9g

Hence, number of coins in 18000 g = $18000/9 = 2000$ coins

b) $54 \text{ kg} = 54 \times 1000 = 54000 \text{ g}$

Hence, number of coins in 54000 g = $54000/9 = 6000$ coins

c) $4500 \text{ kg} = 4500 \times 1000 = 4500000 \text{ g}$

Hence, number of coins in 4500000 g = $4500000/9 = 500000$ coins

d) $2 \text{ kg and } 250 \text{ g} = 2 \times 1000 + 250 = 2000 + 250 = 2250 \text{ g}$

Number of coins = $2250/9 = 250$ coins.

e) $1 \text{ kg and } 125 \text{ g} = 1 \times 1000 + 125 = 1125 \text{ g}$

Number of coins = $1125/9 = 125$ coins.

Page : 199 , Block Name : Shahid Saves The Bank!

Q2 A 2 rupee coin weighs 6 g. What is the weight of a sack with:

- a) 2200 coins ? _____ kg _____ g
- b) 3000 coins? _____ kg

Answer. a) Weight of 1 coin = 6 g

Hence, weight of 2200 coins = $2200 \times 6 = 13200 \text{ g} = 13 \text{ kg and } 200 \text{ g}$

b) Weight of 3000 coins = $3000 \times 6 = 18000 \text{ g} = 18 \text{ kg}$

Page : 200 , Block Name : Shahid Saves The Bank!

Q3 If 100 one rupee coins weigh 485 g then how much will 10000 coins weigh? _____ kg _____ g.

Answer. Since 100 one rupee coins weigh 485 g.

Hence, weight of 1 coin = $485/100$

Hence, weight of 10000 coins = $(485/100) \times 10000 = 485 \times 100 = 48500$
= 48 kg and 500g.

Page : 200 , Block Name : Shahid Saves The Bank!

Q4 2250 g can also be written as 2 kg and 250 g. Can you explain why?

Answer. we know that $1 \text{ kg} = 1000 \text{ g}$

If we divide 2250 by 1000; then we get 250 remainder 2 is quotient. So, we can written 2250 g as 2 kg and 250 g.

Page : 200 , Block Name : Shahid Saves The Bank!

Q1 How do people who cannot see make out different notes and coins?(Hint: Look for a shape , , , etc. on notes of Rs 20, 50, 100, 500 etc. and feel it.)

Answer. shape, size, paper Style, Watermark.

Page : 200 , Block Name : Find Out And Discuss

Q2 What should we look for to check if a 100-rupee note is real or fake?

Answer. DIY

Page : 200 , Block Name : Find Out And Discuss