



# Math Worksheet for 5th Grade

## Volume with unit cubes

Name: \_\_\_\_\_

Due Date: \_\_\_\_\_

Teacher: \_\_\_\_\_

Parent Sign: \_\_\_\_\_

2. A rectangular box is 2 unit cubes high, 3 unit cubes long, and 4 unit cubes wide. What is its volume in unit cubes?
3. How many unit cubes make a cube that is 3 unit cubes on each edge?
4. A prism is 5 units long, 1 unit wide, and 2 units high. What is its volume in unit cubes?
5. A solid is made of 6 layers. Each layer has 8 unit cubes. How many unit cubes in the solid?
6. Count the unit cubes: a box is 7 by 2 by 1. What is the volume?
7. A cube has volume 64 unit cubes. What is the length of one edge in unit cubes?
8. A box is 6 units long, 3 units wide, and 1 unit high. How many unit cubes fit inside?
9. A small crate is 4 units long, 4 units wide, and 1 unit high. How many unit cubes are in two such crates stacked together?
10. A rectangular prism has base area 12 square unit cubes and is 3 unit cubes tall. What is its volume?
11. A shipping box measures 5 unit cubes by 3 unit cubes by 2 unit cubes. If each unit cube represents 1 cubic centimeter, what is the box's volume in cubic centimeters?
12. A stack has 4 layers. The bottom layer has 6 unit cubes, the next has 6, the next has 6, and the top has 6. How many unit cubes total?
13. A toy block set builds a rectangular prism that is 2 by 2 by 5. If you remove a 2 by 2 by 1 slice from the top, how many unit cubes remain?
14. A rectangular prism measures 9 by 1 by 3 unit cubes. How many unit cubes does it contain?
15. A box has volume 30 unit cubes. Its base is 5 by 3 unit cubes. How tall is the box in unit cubes?
16. A candy box holds layers of 12 candies each. If it has 4 layers, how many candies can it hold?
17. A fish tank model is 8 unit cubes long, 4 unit cubes wide, and 2 unit cubes tall. What is the volume?
18. A rectangular solid has dimensions 10 by 1 by 2 in unit cubes. How many cubes inside?
19. A block is 3 by 3 by 1. If you put three identical blocks together to make one solid, what is the total volume?
20. A box is 7 by 3 by 2. How many unit cubes are in the box?
21. Sarah has a box that is 6 units long, 4 units wide, and 3 units tall. She fills it with unit-cube toys. How many toys fit?
22. A rectangular prism contains 72 unit cubes. Its base is 8 by 3 unit cubes. How tall is the prism?
23. A parcel is 5 by 5 by 2 unit cubes. If each unit cube is 1 cubic inch, what is the volume in cubic inches?
24. A small cube is 4 units on each side. A larger cube is 8 units on each side. How many times greater is the larger cube's volume than the smaller cube's volume?
25. A box is 12 unit cubes long, 1 unit wide, and 1 unit high. How many unit cubes fill it?
26. Tom built a tower with 9 unit cubes in each layer and 5 layers high. How many unit cubes total?
27. A rectangular prism has volume 54 unit cubes. If its height is 3 units and one side of the base is 6 units, what is the other base side length?
28. A picnic cooler model measures 4 by 3 by 4 unit cubes. How many unit cubes are inside?



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29. A toy storage box holds 3 layers. The base is 7 by 2 unit cubes. How many unit cubes total?
30. A box has a length of 2 unit cubes, width 2 unit cubes, and height 8 unit cubes. What is its volume?
31. An L-shaped solid is made by attaching a prism 3 by 2 by 1 to another prism 2 by 2 by 1 along a face (so they form an L when viewed from above). If both have height 3 unit cubes, how many unit cubes total? (Hint: find volumes of both prisms and add.)
32. A rectangular prism measuring 6 by 4 by 2 has a smaller 2 by 2 by 2 cube removed from one corner. How many unit cubes remain?
33. A box measures 9 by 2 by 2 unit cubes. If you remove a 3 by 2 by 1 layer from the top, how many unit cubes remain?
34. A block is built from two prisms: one is 4 by 3 by 1 and the other is 4 by 2 by 1, stacked so heights add (total height 2). What is the total volume?
35. A rectangular prism is 8 by 3 by 1. If you put 4 identical prisms together side by side along their length, what is the combined volume?
36. A box can hold 56 unit cubes. If its base is 7 by 4, how tall is it?
37. A rectangular solid is 3 by 6 by 2. A smaller rectangular solid of 3 by 2 by 2 is taken out. How many unit cubes are left?
38. A rectangular storage block measures 5 by 3 by 3 unit cubes. How many unit cubes fit inside?
39. A model house's main room is a prism 6 by 4 by 2. Two identical closets each measure 1 by 2 by 2 and are inside the room (their space is part of the house volume). What is the total volume of the house (including closets)?
40. A box is 10 by 2 by 2. If you stack three of these boxes end to end, what is the total volume?
41. Which has greater volume: a box 4 by 4 by 2 or a box 5 by 3 by 2? How many unit cubes difference?
42. A cube has edge length 5 unit cubes. Another prism is 25 by 1 by 1. Which has the larger volume and by how many unit cubes?
43. A crate is 6 by 5 by 1. If you add a second layer identical to the first, how many unit cubes in the two-layer crate?
44. A rectangular prism has volume 96 unit cubes. If its dimensions are 8 by 4 by  $h$ , what is  $h$ ?
45. A box is 6 by 3 by 2. If you remove 6 unit cubes from inside, what fraction of the box's volume remains? Give your answer as a fraction in simplest form.
46. A rectangular prism is 12 by 1 by 2. If you re-arrange the unit cubes to make a prism with base 6 by 2, what will its height be?
47. Mina builds a cube using 27 unit cubes. She paints the outside faces and then disassembles it. How many unit cubes have paint on at least one face? (Standard painted-cube problem)
48. A storage unit is 4 unit cubes long, 3 unit cubes wide, and 4 unit cubes tall. If each unit cube is 1 cubic foot, how many cubic feet of storage does it have?
49. A box holds 90 unit cubes. Its base is 9 by 5. How many layers tall is the box?
50. A prism is 3 by 4 by 5 unit cubes. If you cut it into three equal smaller prisms by slicing along its height into three 1-by-4-by-5 pieces, what is the volume of one small prism?