

Stuart Little and Alice

You will need:

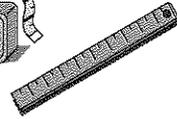
..... rulers



..... measuring tape



..... and/or yardsticks



STUART LITTLE

Here is the beginning of *Stuart Little*, a children's book by E.B. White.

When Mrs. Frederick C. Little's second son arrived, everybody noticed that he was not much bigger than a mouse. The truth of the matter was, the baby looked very much like a mouse in every way. He was only about two inches high; and he had a mouse's sharp nose, a mouse's tail, a mouse's whiskers, and the pleasant, shy manner of a mouse. Before he was many days old he was not only looking like a mouse but acting like one, too — wearing a gray hat and carrying a small cane. Mr. and Mrs. Little named him Stuart, and Mr. Little made him a tiny bed out of four clothespins and a cigarette box.

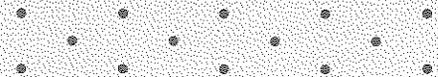
1. Measure, in inches, the height of several boys in your class. To do the following exercises, choose someone whose height is near the average of the heights you measured.
2. Measure, in inches, the length and width of the average boy's
 - a. pants;
 - b. shirt or coat.
3. Measure, in inches, the length and width of:
 - a. a book or binder;
 - b. a chair or desk.

4. Calculate the size of each item in problems 2-3, if it were to be made for Stuart Little. Explain your work.
5. Draw each item in the size that you calculated in problem 4.

ALICE

Here is an excerpt from *Alice in Wonderland*, a book by the English mathematician Lewis Carroll.

...this bottle was not marked "poison," so Alice ventured to taste it, and finding it very nice, (it had, in fact, a sort of mixed flavour of cherry-tart, custard, pine-apple, roast turkey, toffy, and hot buttered toast), she very soon finished it off.



"What a curious feeling!" said Alice, "I must be shutting up like a telescope!"

And so it was indeed: she was now only ten inches high, and her face brightened up at the thought that she was now the right size for going through the little door into that lovely garden.

6. Measure, in inches, the height of several girls in your class. To do the following exercises, choose someone whose height is near the average of the heights you measured.
7. Assuming that before she drank from the bottle, Alice was the size of the average girl in your class, how many times as tall was she after shrinking?
8.
 - a. Measure a real pencil or pen.
 - b. Calculate the correct size for a pencil or pen of the same kind for Alice. Explain.

- c. Draw it in the size you calculated in part (b).
9. Measure a real door, and calculate the dimensions of “the little door into that lovely garden.”

“Curiouser and curiouser!” cried Alice (she was so much surprised, that for the moment she quite forgot how to speak good English). “Now I’m opening out like the largest telescope that ever was! Goodbye, feet!”...

...Just at this moment, her head struck against the roof of the hall: in fact she was now rather more than nine feet high...

10. How many times as tall as an average girl in your class is Alice now?
11. What would be the size of a pencil if it were the right size for giant Alice? Show your calculations.

THE BIG FRIENDLY GIANT

The following are quotations about the Big Friendly Giant, a character in Roald Dahl’s book *The BFG*.

- It was four times as tall as the tallest human.
- It actually had to bend down to peer into the upstairs windows. That’s how tall it was.
- ...an arm as thick as a tree trunk...
- The Giant was sprinting down the High Street... Each stride he took was as long as a tennis court.

- In the middle of the floor there was a table twelve feet high...
- He had truly enormous ears. Each one was as big as the wheel of a truck...

12. **Project** Estimate the height of the Giant using the information given in each quotation. Explain your work.
- What real-world numbers did you use?
 - How did you find them?
 - What calculations did you do?
 - Did the results of your calculations agree with each other?
 - Based on all the calculations, what is your final estimate of the Giant’s height?

YOUR OWN STORY

13. **Project**
- Write and illustrate a story for a young child featuring little people or giants. Make sure the dimensions of all objects are sized correctly.
 - On a separate piece of paper, explain your calculations.

OTHER STORIES

14. **Project** Ask a librarian or an elementary school teacher to suggest a book that involves little people or giants. Make up math problems based on the book. Use specific quotations from the book as much as possible. On a separate piece of paper, solve the problems you make up.

REVIEW SOLVING EQUATIONS

15. Solve the equation,
- $$2.5x + 18 + 1.5x - 11 = 19.$$

16. If $x = 3$, calculate, $2.5x + 18 + 1.5x - 11$.
17.  Explain how problems 15 and 16 are related.