



stem4math

Growth



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Engage

Make a list of the parts of the body that **you** think should be measured to design a costume. When you are done, discuss it with a classmate (in **pairs**) and agree on a new list. Discuss the list with your **team** and agree on a final list.

(Remember that we are not deciding on whose list to use, but on a brand new list where important measures are kept and redundant or non-important ones are discarded.)



Investigate

Make a table like the one below in your notebook or spreadsheet. Start by listing all the parts of the body that your team is going to measure and then perform the real measurements together. Each student should take notes of those measurements.

Part of the body	Real Measurement
Head's circumference	
...	

Draw a simple model (it can be as simple as a stick man) where each mm in your drawing represents a cm in your table, that is, with a scale of 1:10.



Make a table like the one below in your notebook or spreadsheet. Use additional paper or a calculator (if you are allowed to) to calculate your estimations using height as the scaling factor. Share and discuss your estimations with your team and agree on a **new** table that will be shared by the whole group.

Part of the body	Estimate for grown-ups	Estimate for toddlers
Head's circumference		
...		

[OPTIONAL] Using the data in those columns, draw simple models of a grown-up and a toddler using a scale of 1:10 (you are allowed to glue two or more pages together if your model is too big for your paper). Do this with your team.

Make a table like the one below in your notebook or spreadsheet. (Use the internet or the anthropometric tables if you don't have a real grown-up or toddler that you can measure).

Part of the body	Real for grown-ups	Real for toddlers
Head's circumference		
...		

[OPTIONAL] Using the data in those columns, draw simple models of a grown-up and a toddler using a scale of 1:10 (you are allowed to glue two or more pages together if your model is too big for your paper). Do this with your team.





Conclude

Compare the last two tables (and the drawings, if you have them) and discuss why some measurements are not even close to your estimations. Then, make two tables like the ones below in your notebook or spreadsheet, comparing the proportions of your body and a grown-up's body and the proportions of your body and a toddler's body.

Part of the body	Real for grown-up / Real measurement for child (as a fraction)	Real for grown-up / Real measurement for child (decimal number)
Head's circumference		
...		

Part of the body	Real for toddler / Real measurement for child (as a fraction)	Real for toddler / Real measurement for child (decimal number)
Head's circumference		
...		

Share your findings with the other teams (oral presentation, poster, document, etc).





Plan

Plan how to create the costumes that will fit the REAL measurements that you have on the tables by drawing one for your size and scaling appropriately for the others. You can test your ideas using 1:10 models that should fit on standard sheets of paper.



Create

Remember that you should use the material wisely, so think carefully how to place each part of the costume on the cloth/paper before asking the teacher for the cloth and, of course, before making any cuts!



Report

Summarize what you have learned in this activity:

I already knew:	Now I also know:

