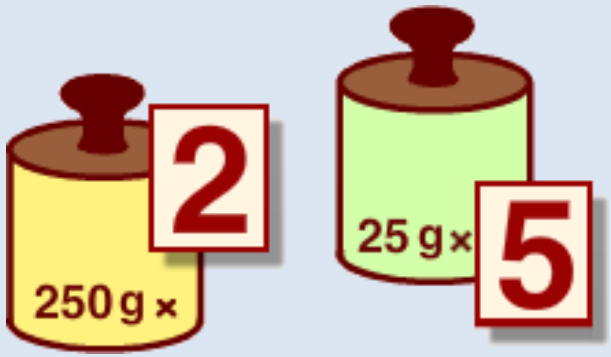
MODULE 4: INVESTIGATION 4

Exploring Conversions



ACTIVITY 4.4.1

Converting Length

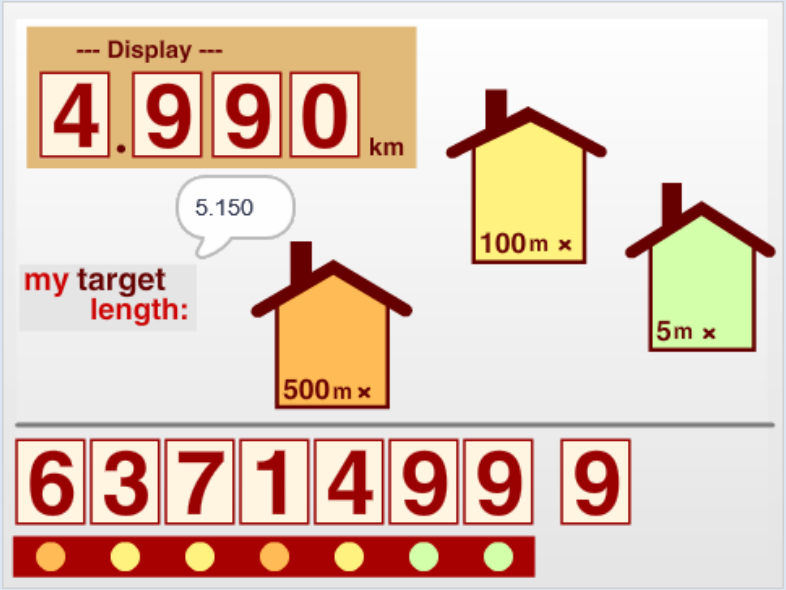
Module 4: Investigation 4

Activity 4.4.1 – Converting Length

Open project **47-Converting Length**.

- Explore the project, run its green flag and explore how each house contributes to the Display.

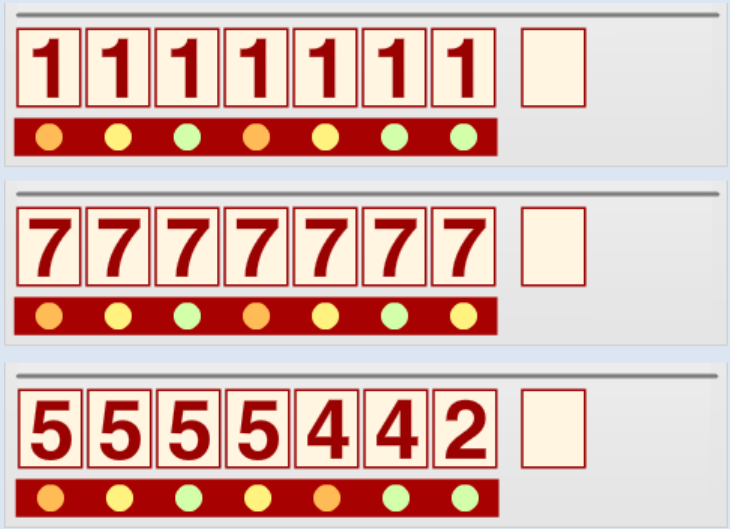
Explore the **input's** scripts to understand what happens with the input value when dragged over the **500 m ×** house, **100 m ×** house or **5 m ×** house.



Module 4: Investigation 4

Activity 4.4.1 – Converting Length

- How many metres in 1km? How many 500m in 1km? How many 5m in 1km?
- Which record of 7 input digits would produce the smallest possible length? What is the biggest length that can be build in 7 steps?
- How could you build the 9.999km target number?
- What length would be displayed based on the input values below?



Module 4: Investigation 4

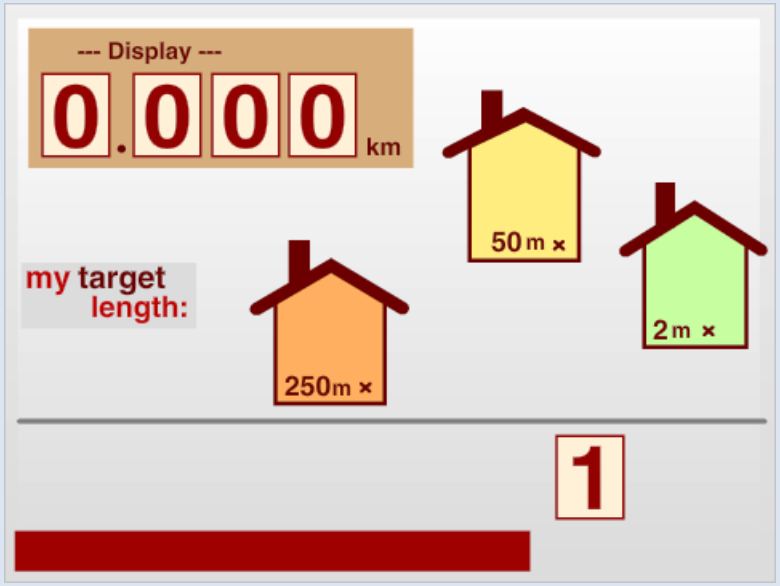
Activity 4.4.1 – Converting Length

- **[Extension]** Switch the backdrop to *converting length 2*.

  - **What is different?**
  - **Will the game work correctly now? If not, explain why.**

  ?

- **[Extension]** Which scripts need to change? Start fixing the **input** value when over the **2 m ×** green house. Test with different **input** values.

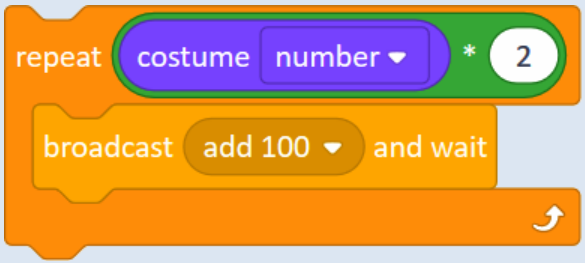


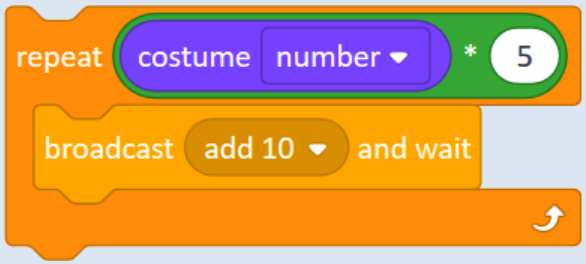
Module 4: Investigation 4

Activity 4.4.1 – Converting Length

- **[Extension]** Fix the **input** value behaviour when atop the **50 m ×** yellow house. Test with different **input** values.

- **[Extension]** The most complex is the **250 m ×** orange house as it should contribute to **hundreds** and to **tens**:





- **Can we simply snap these two repeat structures together to become a new definition of the *in orange* block?**
- **In which order? Does it matter?**

?

EXTENSION ACTIVITY 4.4.2

Converting Mass

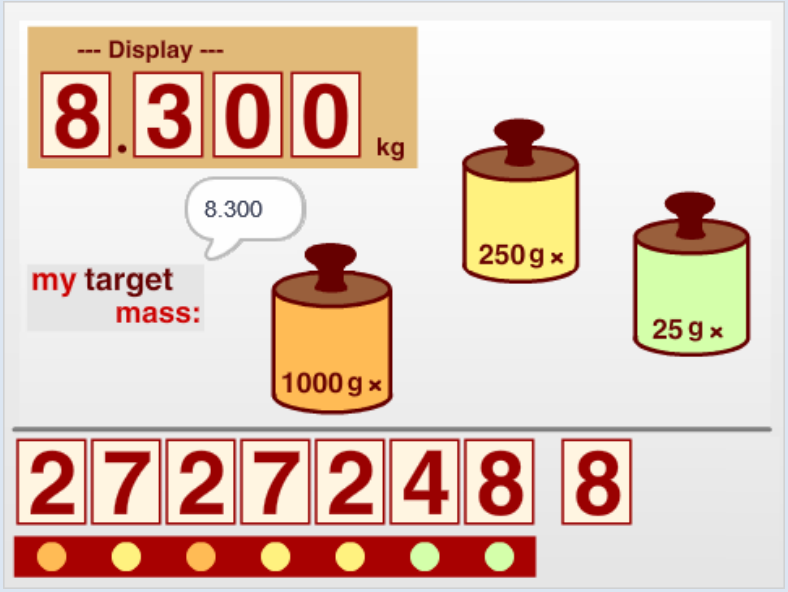
MODULE 4: INVESTIGATION 4

Ext. Activity 4.4.2 – Converting Mass

Open project **4-Converting Mass**.

- Explore the project, run its green flag and explore how each house contributes to the Display.

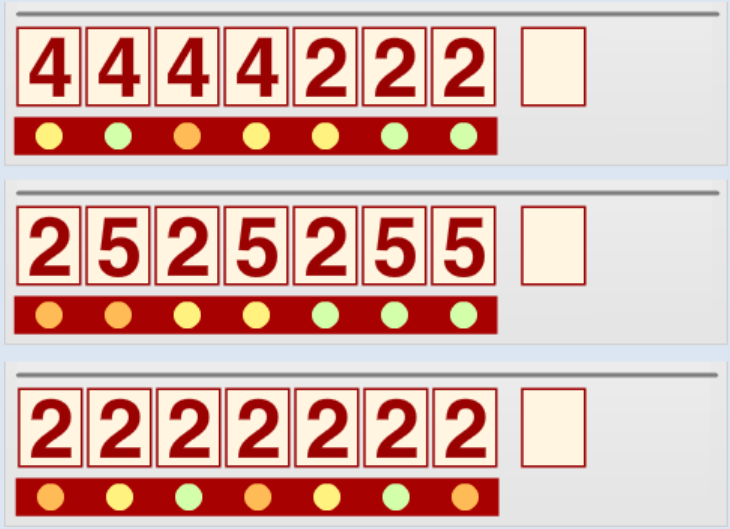
Explore the **input's** scripts to understand what happens with the input value when dragged over **1000 g x** mass, **250 g x** mass or **25 g x** mass.



Module 4: Investigation 4

Ext. Activity 4.4.2 – Converting Mass

- How many grams in 1 kg? How many 250 kg in 1 kg? And in 2 kg? How many 25 g in 1 kg? What fraction of 1 kg is 250 g?
- Which record of 7 input digits would produce the smallest possible mass? What is the biggest mass that can be built in 7 steps?
- How could you build the 9.995 kg outcome?
- What masses would be displayed based on the input records below?



Module 4: Investigation 4

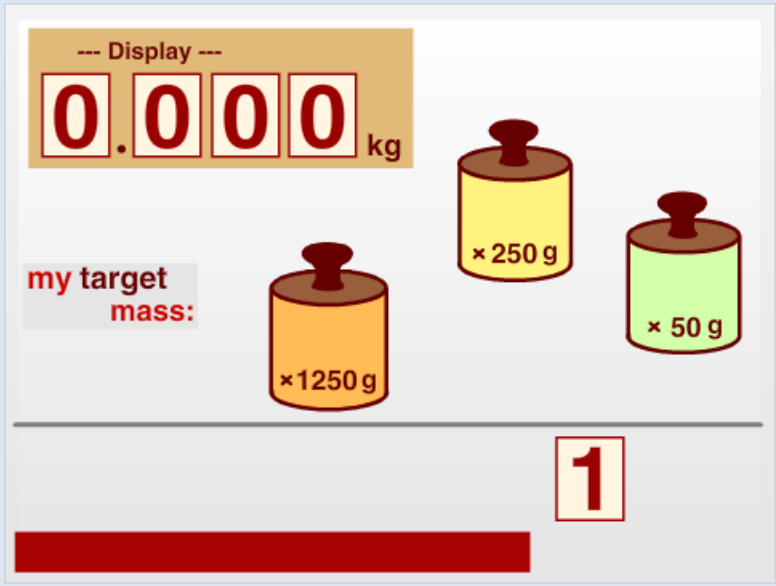
Ext. Activity 4.4.2 – Converting Mass

- Switch the backdrop to *converting mass 2*.

  - **What is different?**
  - **Will the game work correctly now? If not, explain why?**

  ?

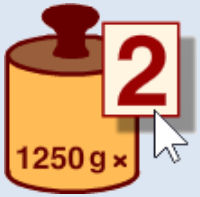
- Which scripts need change? Start fixing the **input** value when over the **50 g ×** green house. Test with different **input** values.



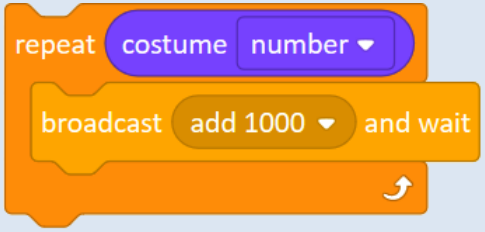
Module 4: Investigation 4

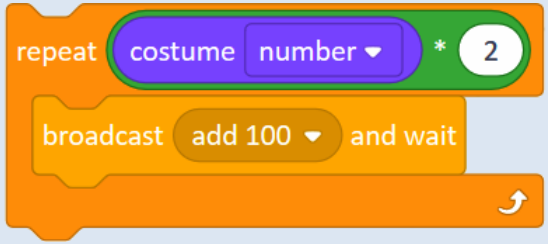
Ext. Activity 4.4.2 – Converting Mass

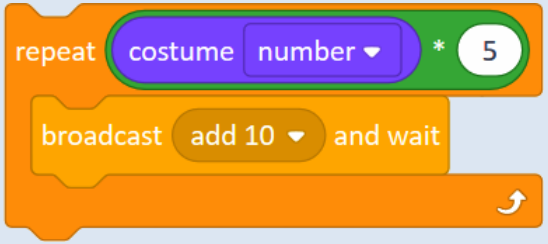
- Fix the **input** value behaviour when over the **200 g ×** yellow house. Test with different **input** values.
- The most complex is the **1250 g ×** orange house as it should contribute to **thousands**, **hundreds** and **tens**.



- **Do you see how these scripts could generate the number 1250?** ?
- **Can we snap these three scripts into on? In which order? Does it matter?**







EXTENSION ACTIVITY 4.4.3

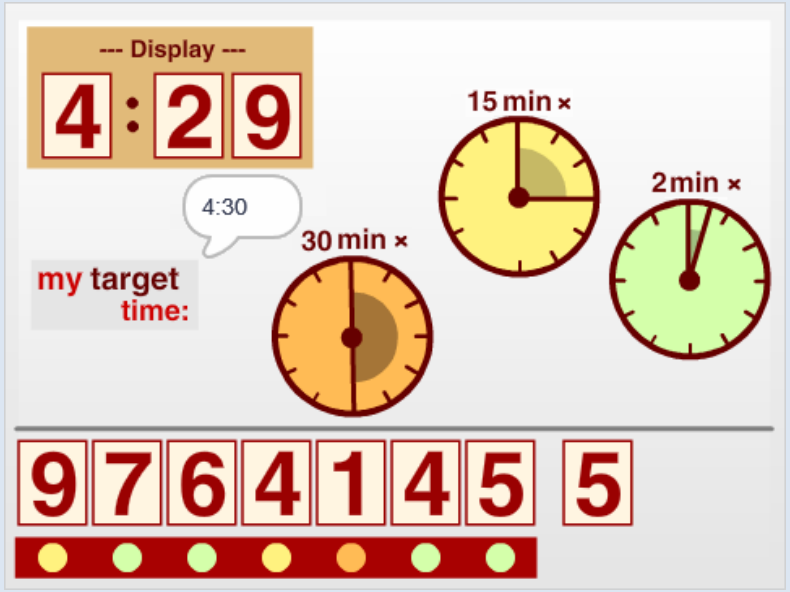
Converting Time

Module 4: Investigation 4

Ext. Activity 4.4.3 – Converting Time

Open project **4-Converting Time**.

- Explore the project, run its green flag and explore how each house contributes to the Display.
- Explore in particular the **input's** scripts to understand what happens with the input value when dragged atop **30 min ×** dial, **15 min ×** dial or **2 min ×** dial.



Module 4: Investigation 4

Ext. Activity 4.4.3 – Converting Time

- How many minutes in 1 hour? How many 2 mins in 1 hour? And in half an hour? How many 15 mins in 1 hour? And 30 mins in 1 hour?
- Which record of 7 input digits would produce the smallest possible time? Is it possible to build 3:33 in 7 steps? Is it possible to build 1:00 in 7 steps? Is there more than one solution?
- What time would be displayed based on these input records?

Module 4: Investigation 4

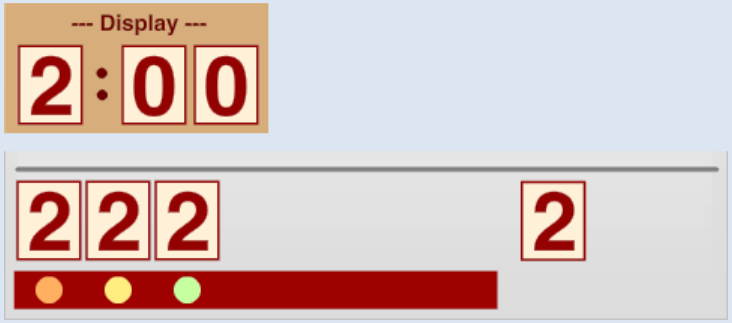
Ext. Activity 4.4.3 – Converting Time

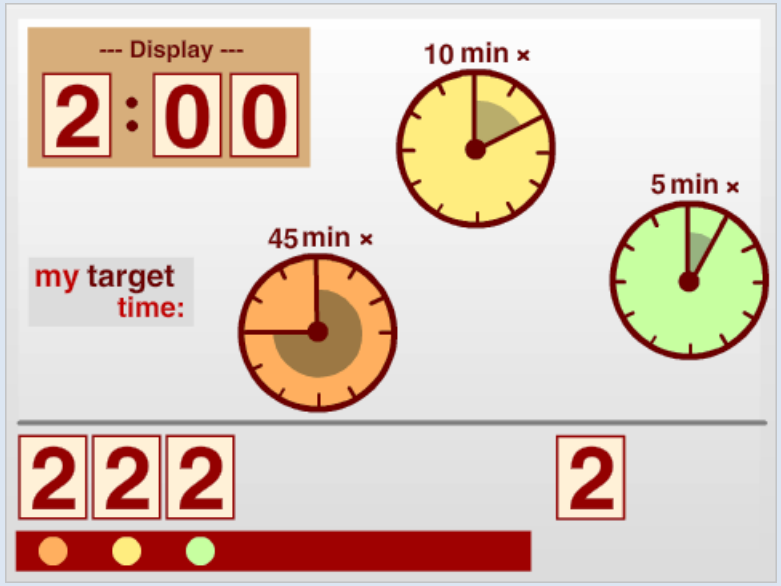
- Switch the backdrop to *converting time 2*.

  - **What is different?**
  - **Will the game work correctly now? If not, explain why?**

  ?

- Which scripts need change?
  Fix the **input** value over each dial. Test with different **input** values.





Module 4: Investigation 4

My Investigation 4 check list:

- ☐ I reached the target length, mass or time in 7 steps or less.
- ☐ I envisaged the increase in the kilometre display when adding different amounts of metres before trying in Scratch.
- ☐ **[Extension]** I envisaged the increase in the kilogram display when adding different amounts of grams.
- ☐ **[Extension]** I envisaged the increase in the hours display when adding different numbers of minutes.
- ☐ **[Extension]** I adapted the conversion game by changing the background and updating the scripts to be able to play with different amounts of metres, grams and/or minutes.