Cat Shelter Design

流浪貓休息所

What we have done …

Design a cat shelter which can reduce temperature change

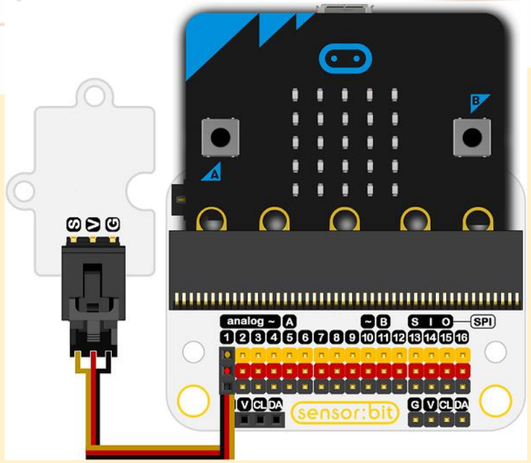
Self-learning:

Heat transfer processes

DIY:

Made a prototype of the cat shelter with limited budget.

Apply the knowledge of coding in measuring temperature change



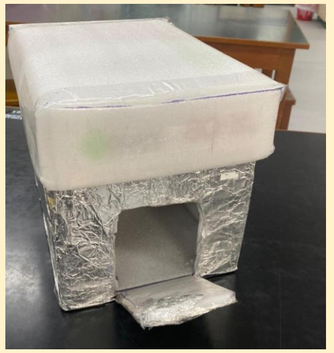
Test the effectiveness of the shelters

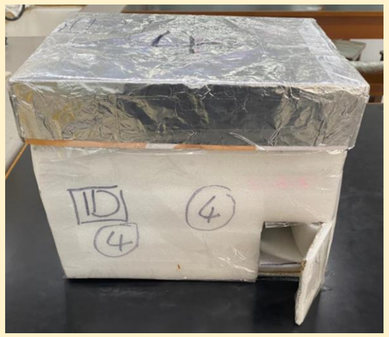
Identified **variables** in a **fair test**.

Measured water temperature change in shelters.

Compare the effectiveness of different designs.

Group	Temperature change (℃)
1	- 6.25
~~2~~	~~-6.50 (- 8.25)~~
3	- 4.69
4	- 4.44
5	- 7.56
6	- 6.75
7	- 4.17
8	- 3.81
9	- 2.94
10	- 3.51
Control	- 6.31



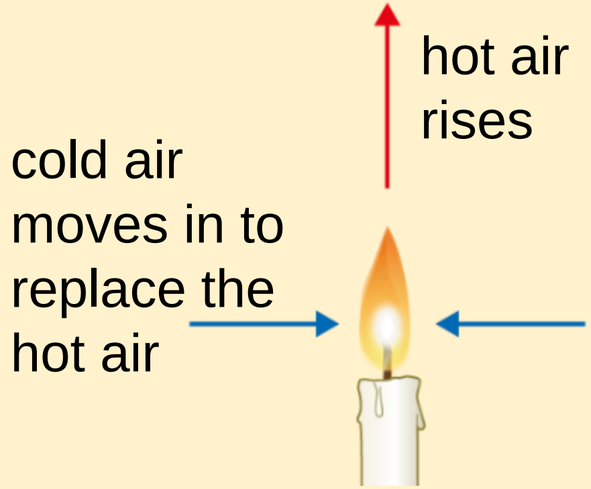


Heat transfer processes

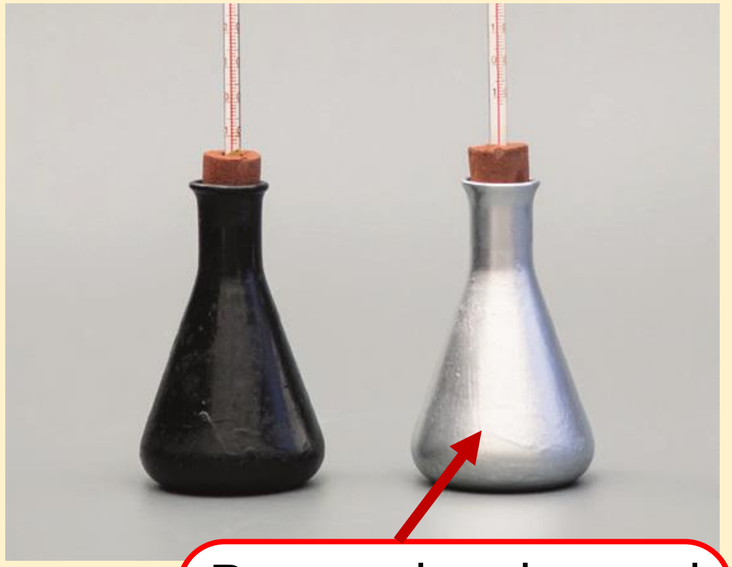
Conduction
傳導

Metals are good conductors of heat.
Non-metals are good insulators of heat.

Convection
對流



Radiation
幅射



Poorer absorber and emitter of radiation
較弱的輻射吸收體和發射體

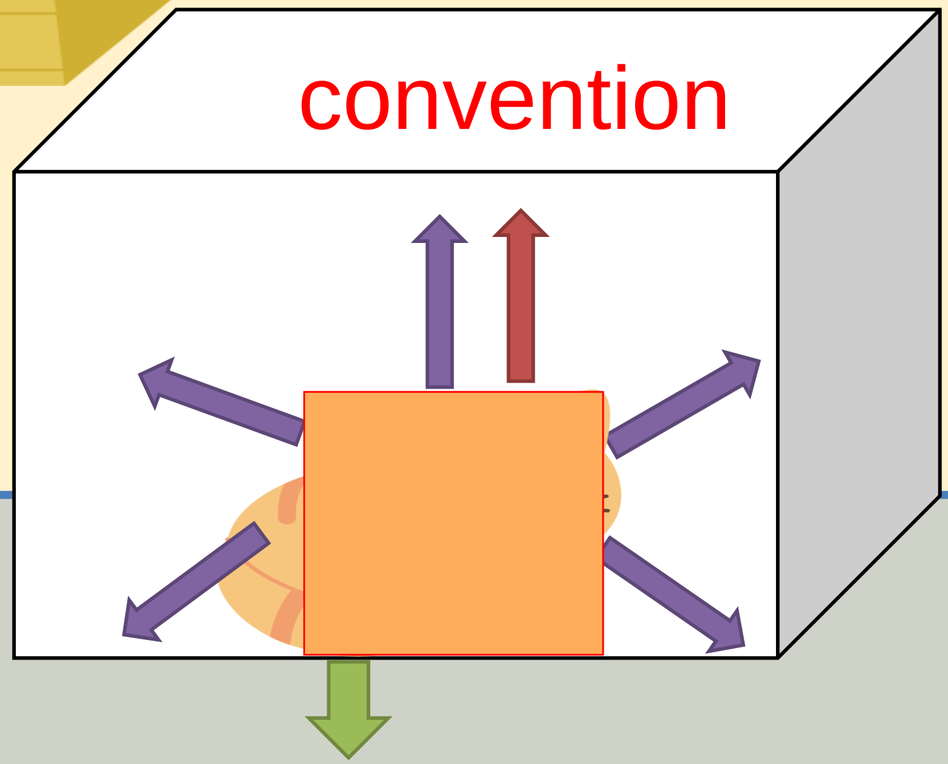
How can you modify you design?

hotter

thermal energy

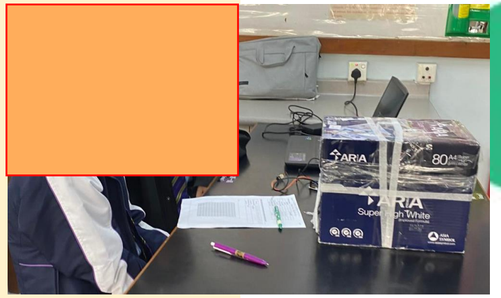
Cooler (environment)

- position of the exit
- colour of the shelter



The ground

Engineering Design (工程設計)



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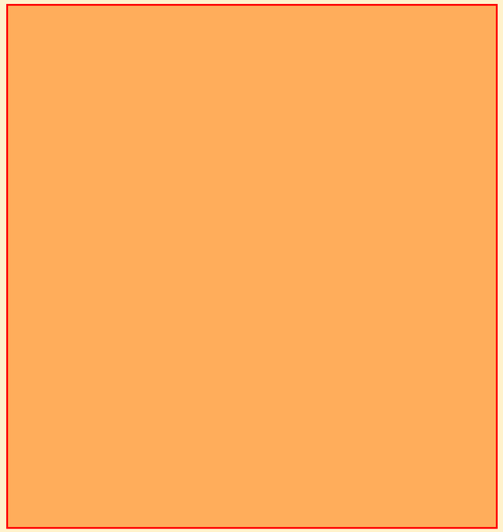
Where should we place the cat shelters?

State the **features** that a cat shelter should have.
(other than reducing temperature change)

除減慢溫度變化的效能外，你認為一個流浪貓的休息所還需要**具備哪些特質?**



When designing a product, we should consider…

- budget
- the needs of users
- the expectations from different people