Everyday Computing Concepts

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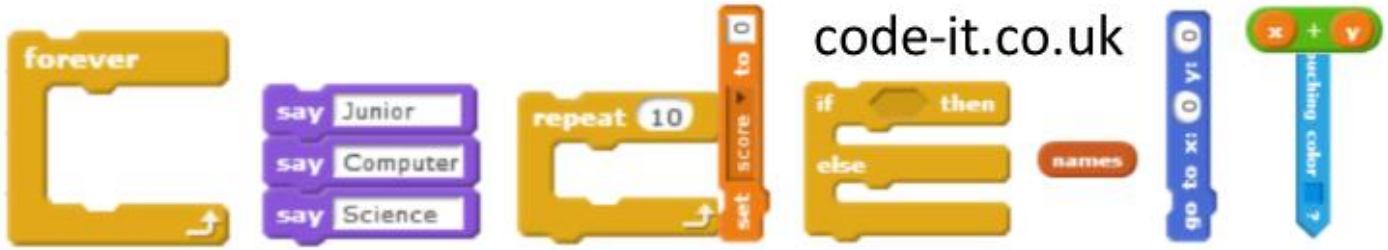

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Author of the code-it resources

Menu

- Everyday Sequence
- Everyday Repetition
- Everyday Selection
- Everyday Variables
- Everyday Procedures

Develop one concept at a time.

Start with the everyday understanding of the concept using this resource

Then roleplay the concept using the concept before coding resource

Finally create a programming project that uses the concept

Everyday Sequences

Everyday sequences

Giving directions

- Go down the hill
- Turn left onto the road
- Past the small shop
- It has a green door

Picture by Hannah Donovan

Everyday sequences

Teacher instructions

- Pack away
- Stack your chairs
- Get your coats
- Line up ready to go

Picture by KalvinKalvin

Everyday sequences

Teacher instructions

- Pack away
- Stack your chairs
- Get your coats
- Line up ready to go

Does the order the children carry out the instructions matter?

Picture by KalvinKalvin

Everyday sequences

Teacher instructions

- Pack away
- Stack your chairs
- Get your coats
- Line up ready to go

Does the order the children carry out the instructions matter?

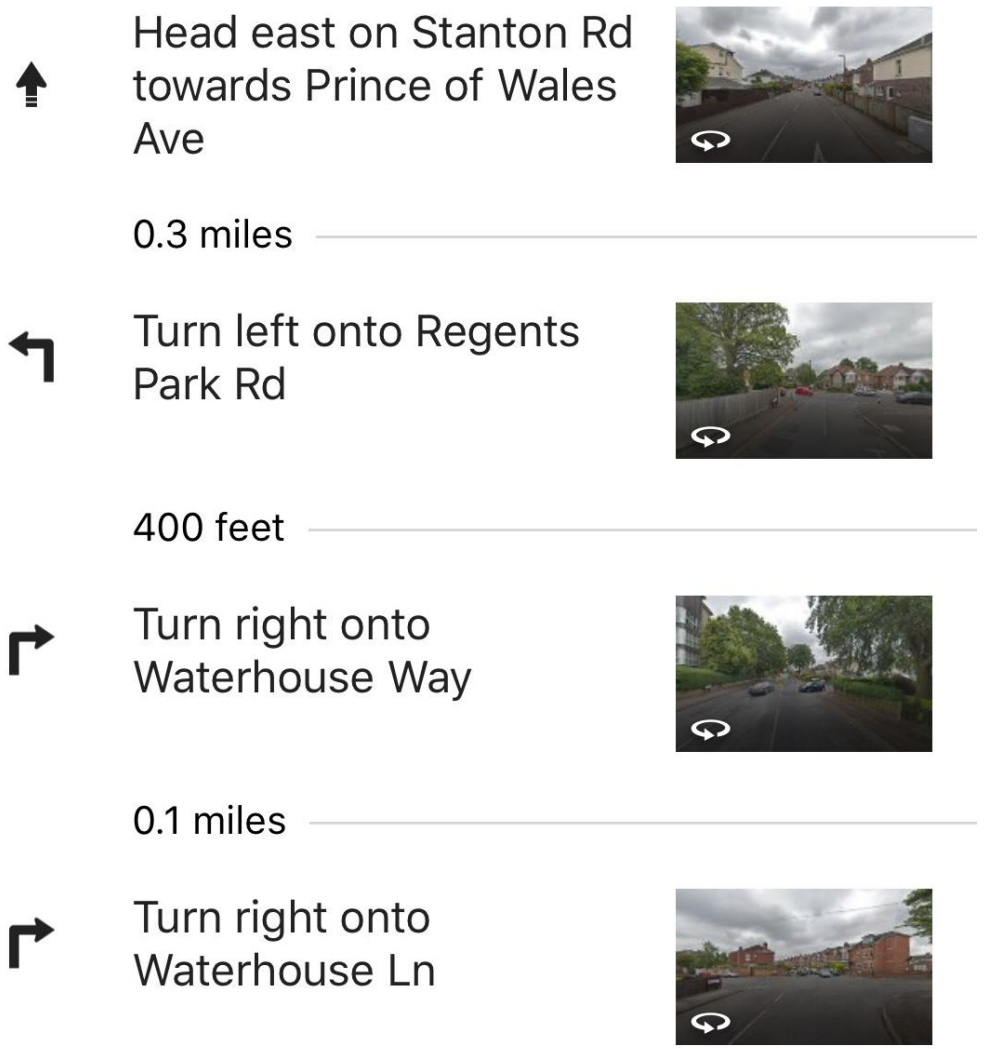
Picture by KalvinKalvin

The order does matter for this sequence but it might not always matter for every sequence.

Everyday sequences

Satnav instructions

- Head east
- Turn left
- Turn right
- Turn right



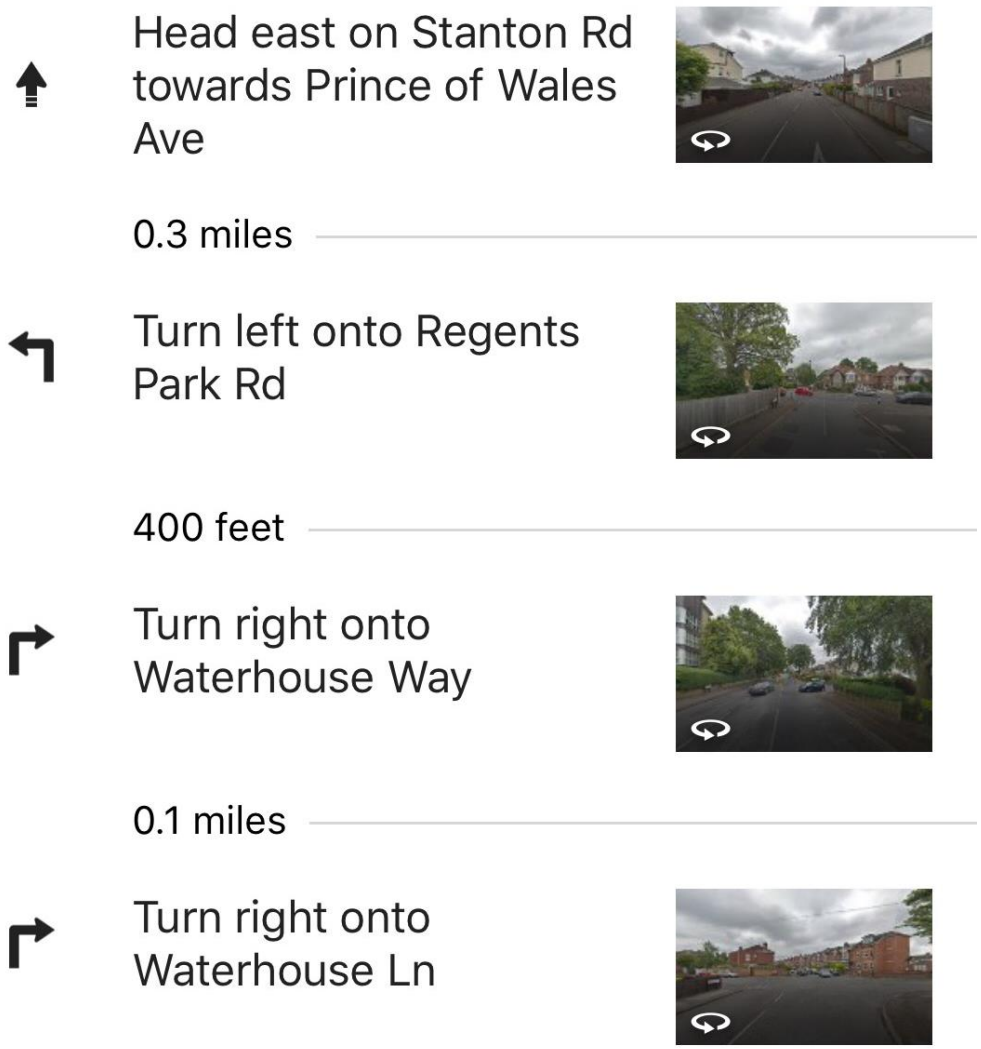
Google Maps

Everyday sequences

Satnav instructions

- Head east
- Turn left
- Turn right
- Turn right

Does the order matter?



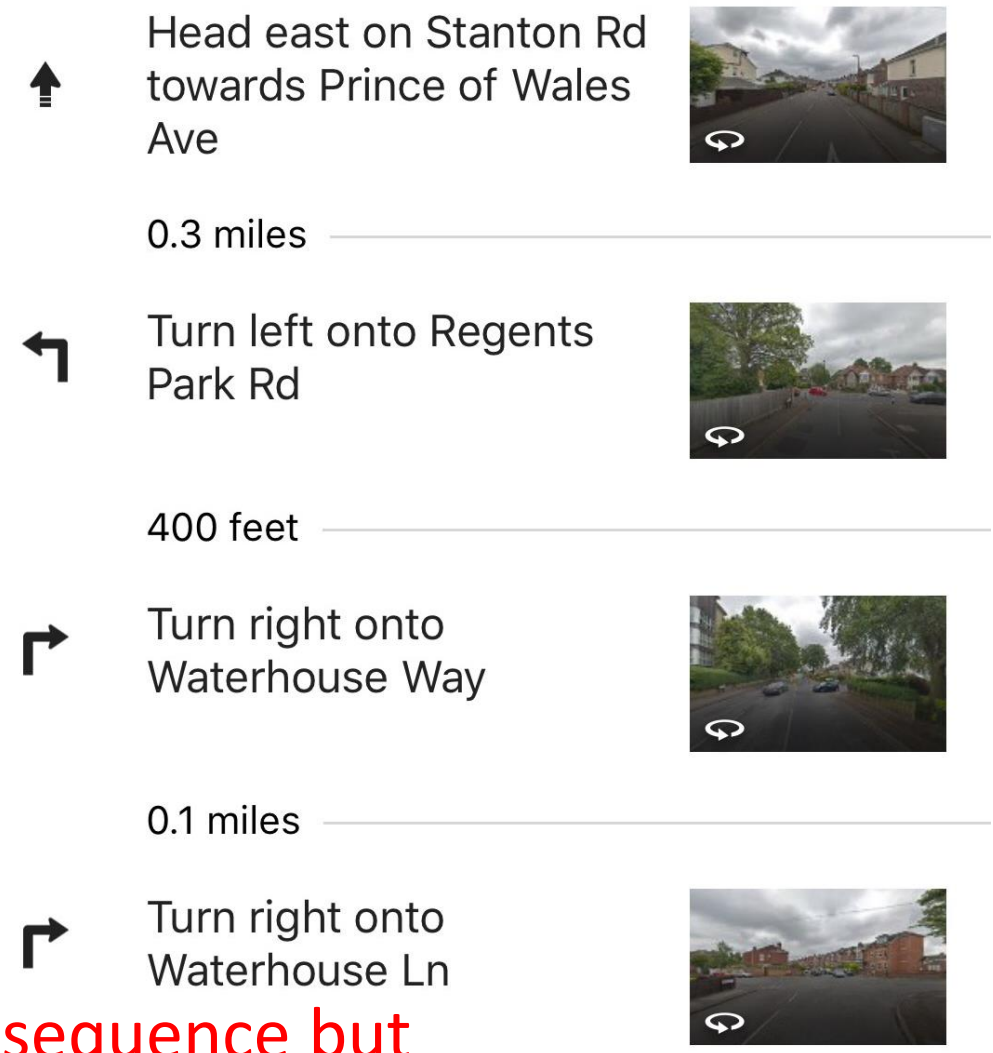
Google Maps

Everyday sequences

Satnav instructions

- Head east
- Turn left
- Turn right
- Turn right

Does the order matter?



Google Maps

The order is very important for this sequence but it might not always matter for every sequence.

Everyday Repetition

Everyday repetition

Music loops

Can you think of any other songs with loops?

I know a song that will
get on your nerves
Get on your nerves
Get on your nerves
repetition

I know a song that will
get on your nerves
Get on your nerves
Get on your nerves
repetition

I know a song that will
get on your nerves x3
repetition

https://www.youtube.com/watch?v=1mgpZ3gaYv0

Everyday repetition

Dance loops

Which parts of the dance are repeated?

Better when I'm Dancing - Meghan Trainor - Easy Kids Dance Warming Up Video - Choreography

Everyday repetition

Dance loops

Which parts of the dance are repeated?

Brain Breaks - Action Songs for Children - Happy Dance - Kids Songs by The Learning Station

Everyday Conditional Selection

Choices made that affect the outcome

Everyday selection

If you don’t tidy your room
I will be very cross

Everyday selection

condition

If you don’t tidy your room
I will be very cross

action

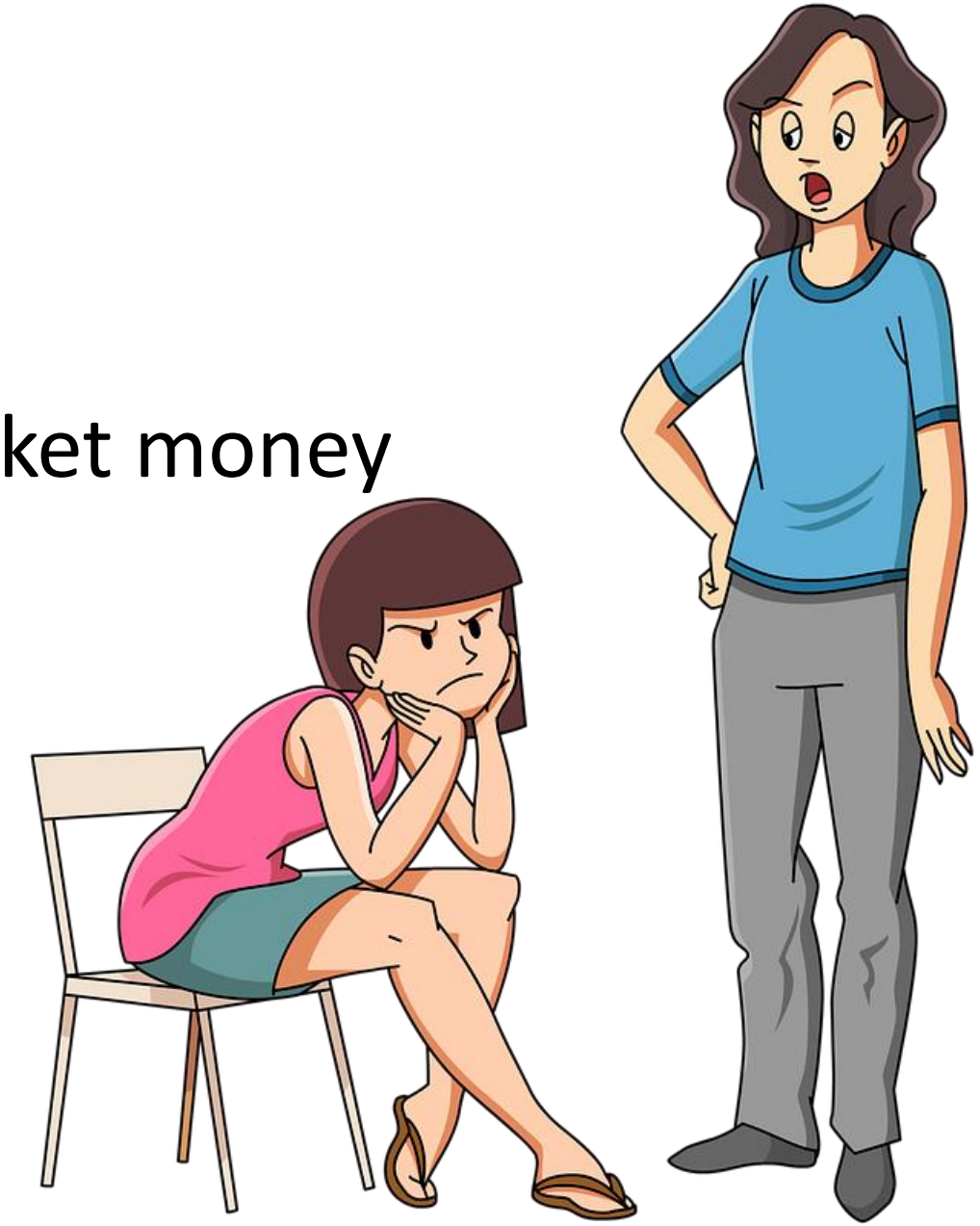
Everyday selection

If you do your jobs

I will pay your pocket money

What is the condition?

What is the action?



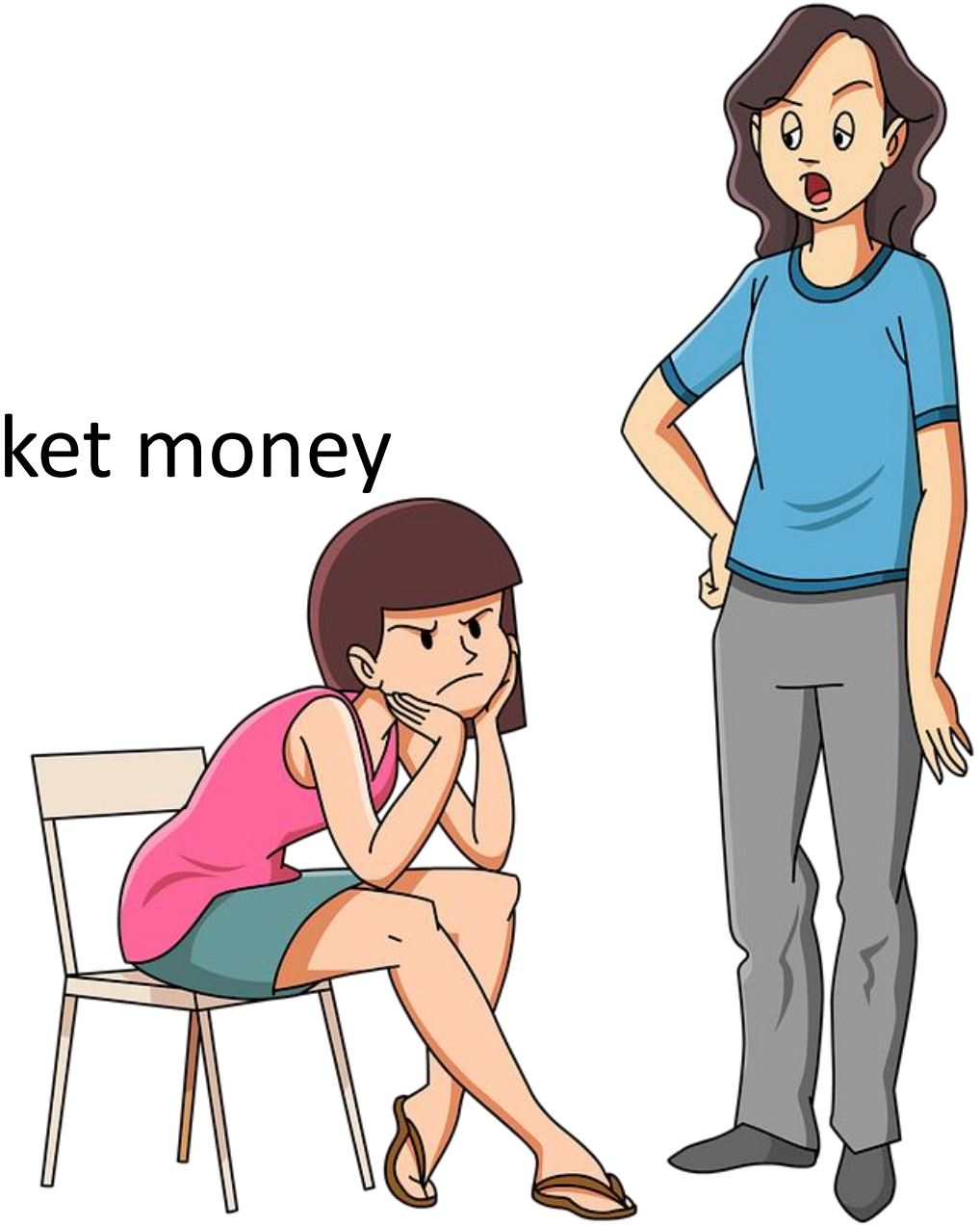
Everyday selection

condition

If you do your jobs

I will pay your pocket money

action

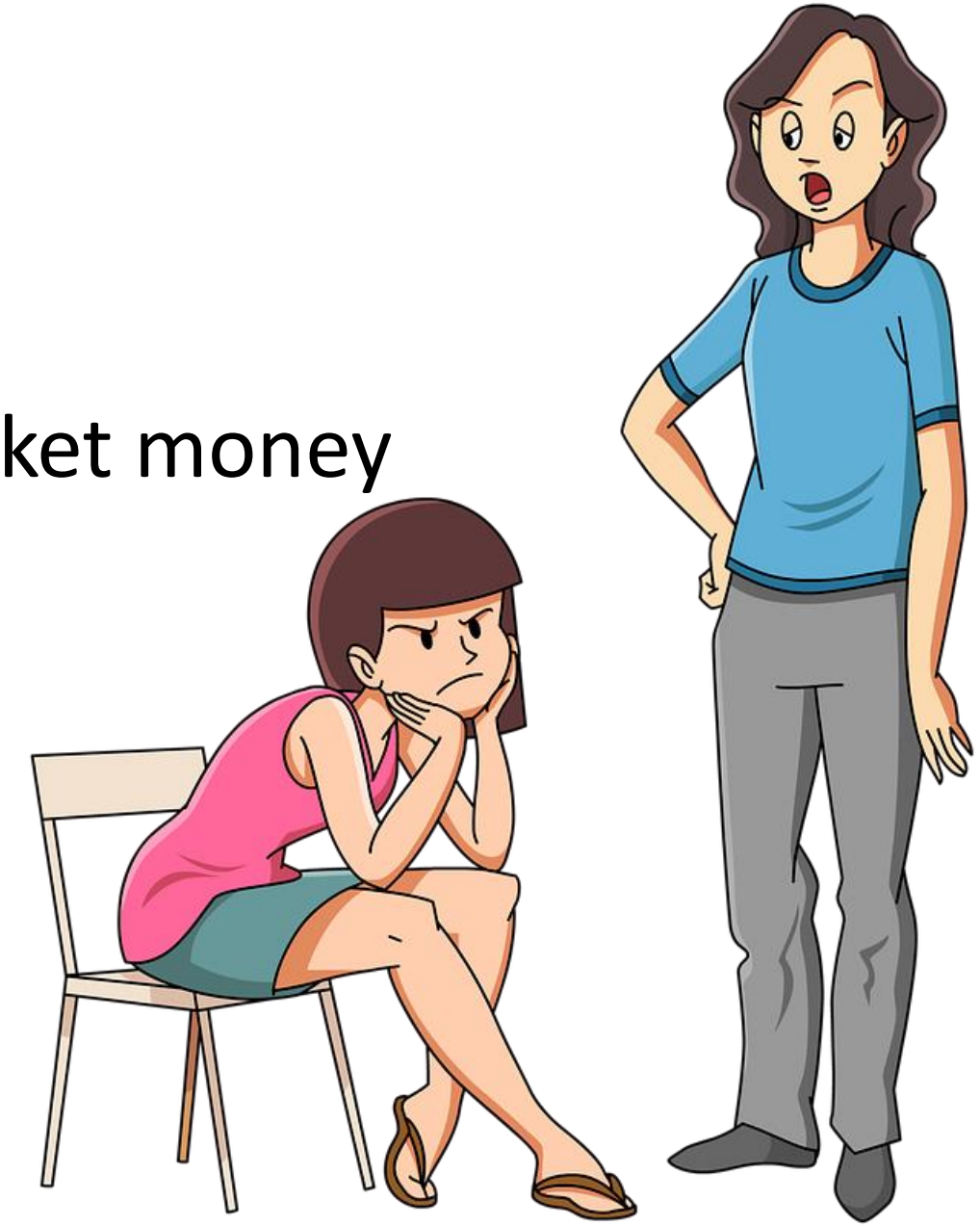


Everyday selection

If you do your jobs

I will pay your pocket money

What happens if she doesn't do her jobs?

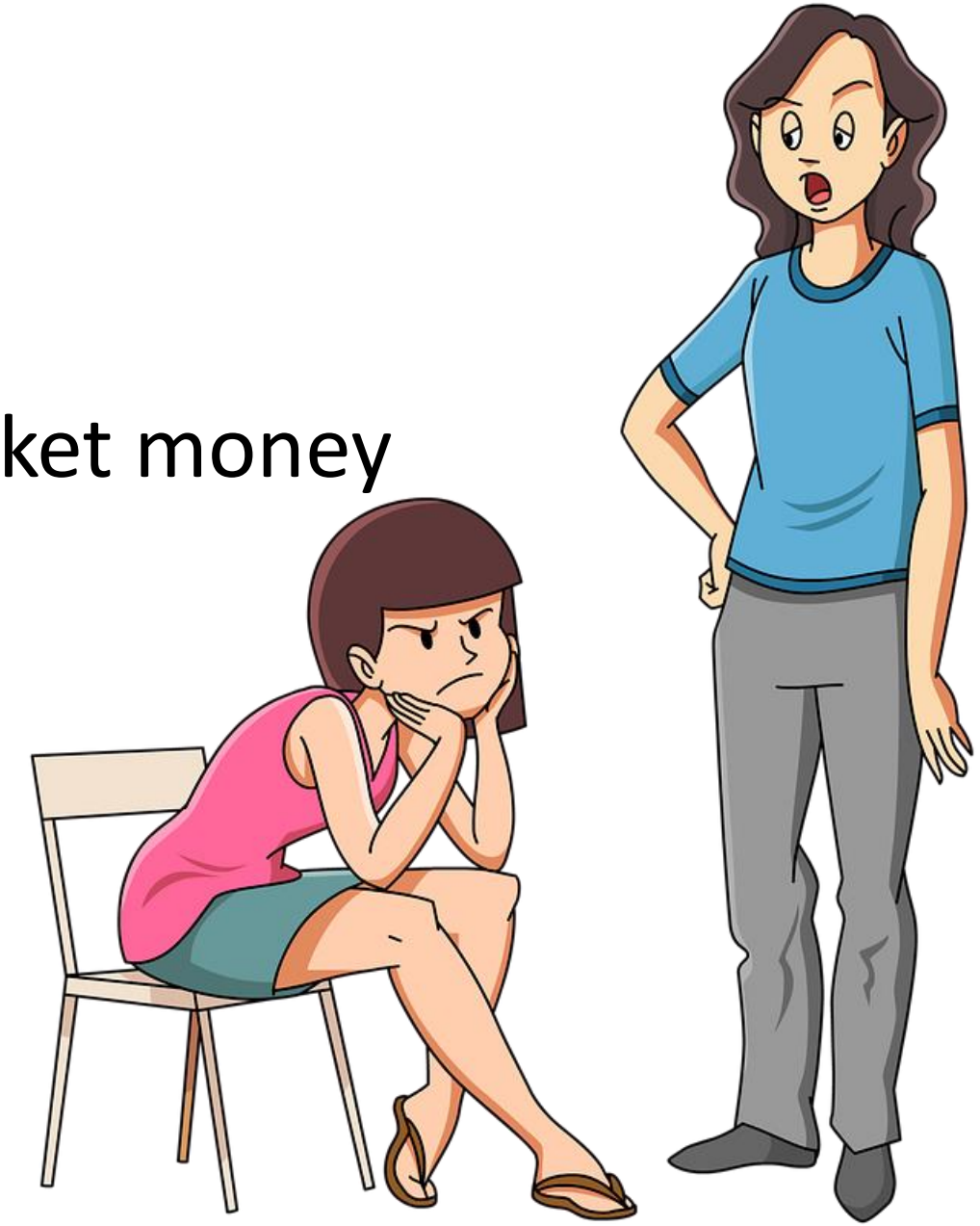


Everyday selection

If you do your jobs

I will pay your pocket money

We don’t know



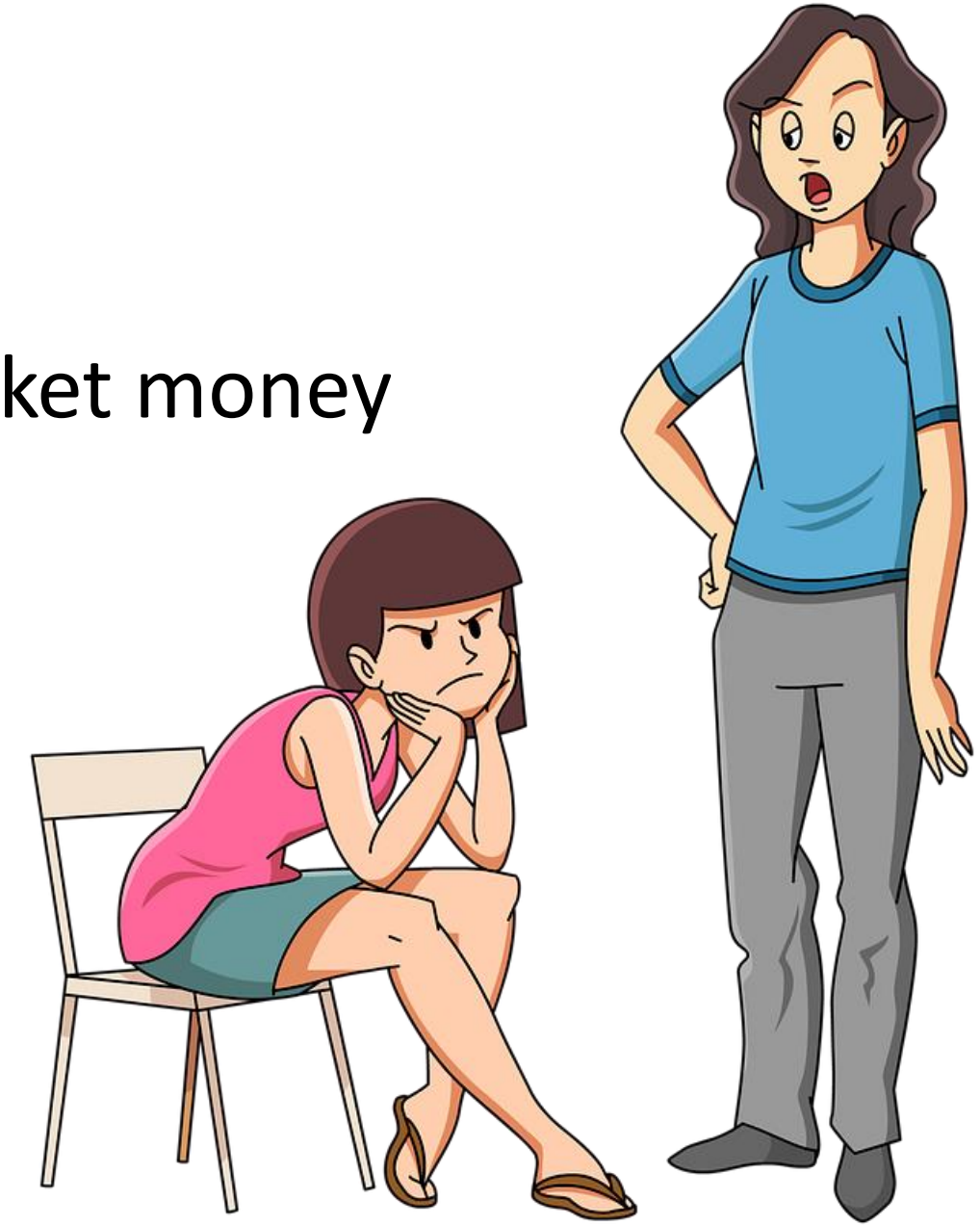
Everyday selection

If you do your jobs

    I will pay your pocket money

Else

    no pocket money



What happens if she doesn't do her jobs?

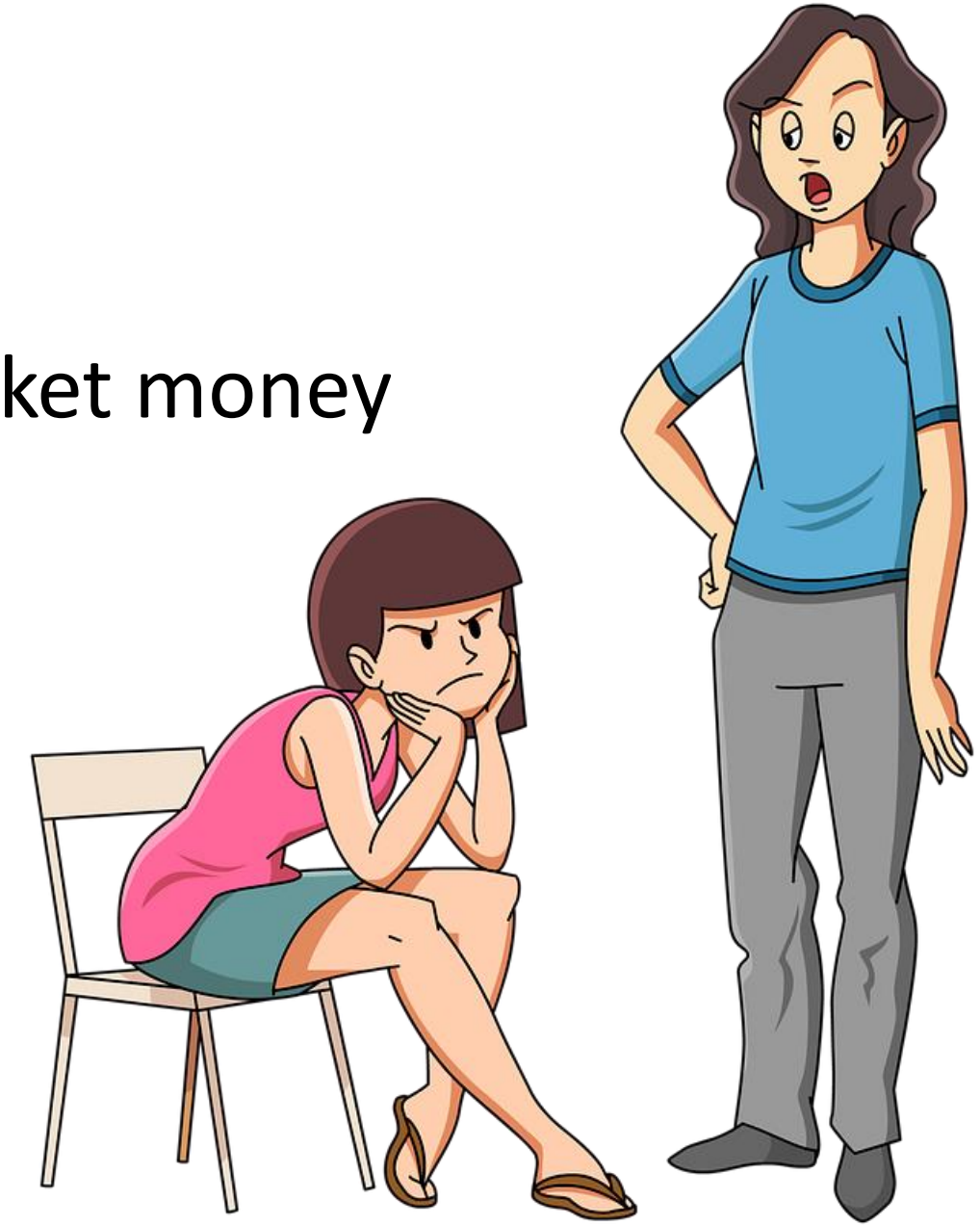
Everyday selection

If you do your jobs

    I will pay your pocket money

Else

    no pocket money



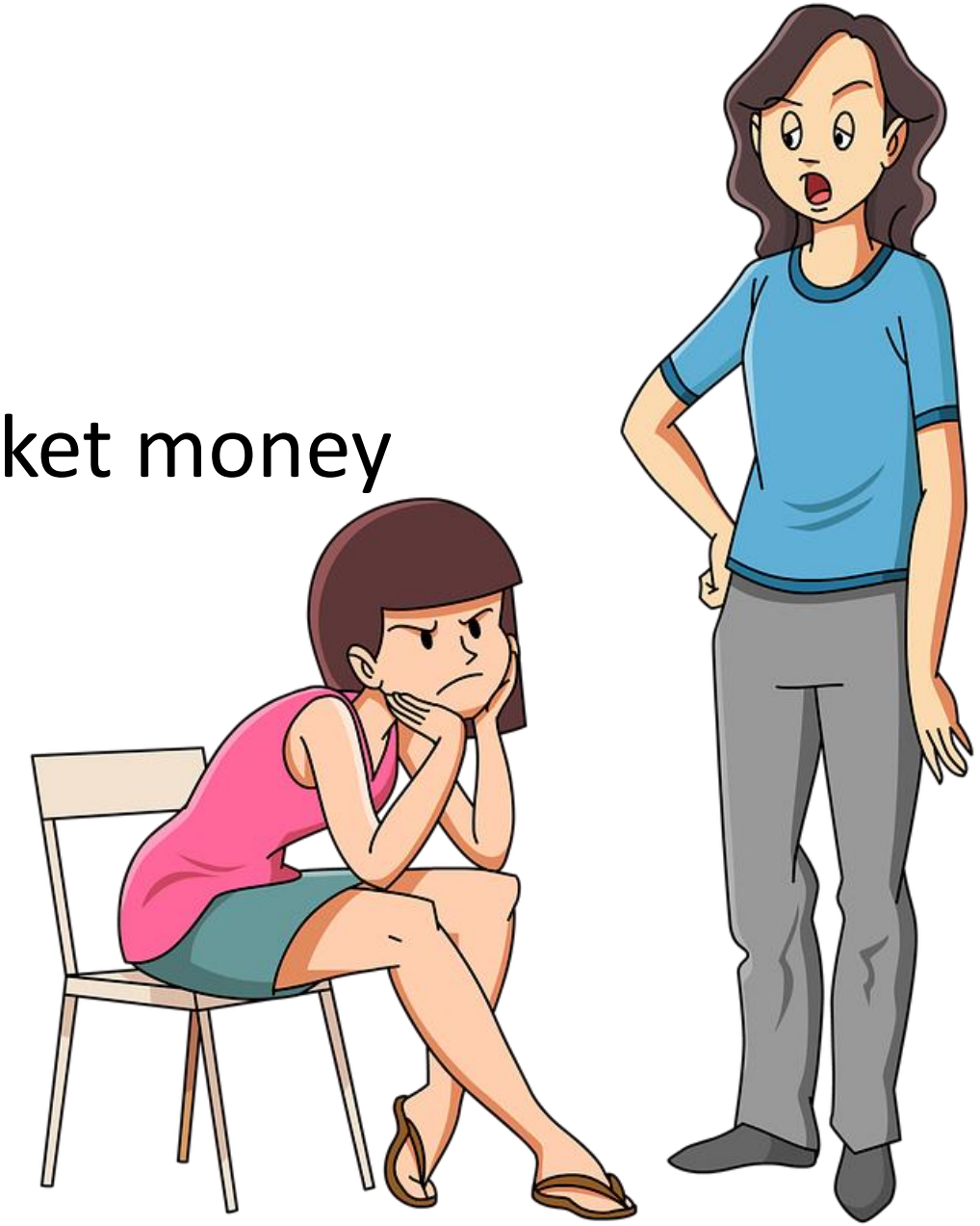
No pocket money

Everyday selection

If you do your jobs

I will pay your pocket money

Can you write your own everyday condition and action?



Everyday Variables

Used to store information that can be referenced by an algorithm or computer program

Everyday variables Visitor Car Parking Space

Name

Value
(Red car)

Monday

Everyday variables Visitor Car Parking Space

Name

Value
(Yellow car)

Tuesday

Everyday variables Visitor Car Parking Space

Name

Value

Empty

Wednesday

Everyday variables Visitor Car Parking Space

What is this variable called?

Everyday variables Visitor Car Parking Space

What is this variable called?

visitor

Everyday variables Visitor Car Parking Space

Tell your neighbour how the value of the variable changed every day

Everyday variables Visitor Car Parking Space

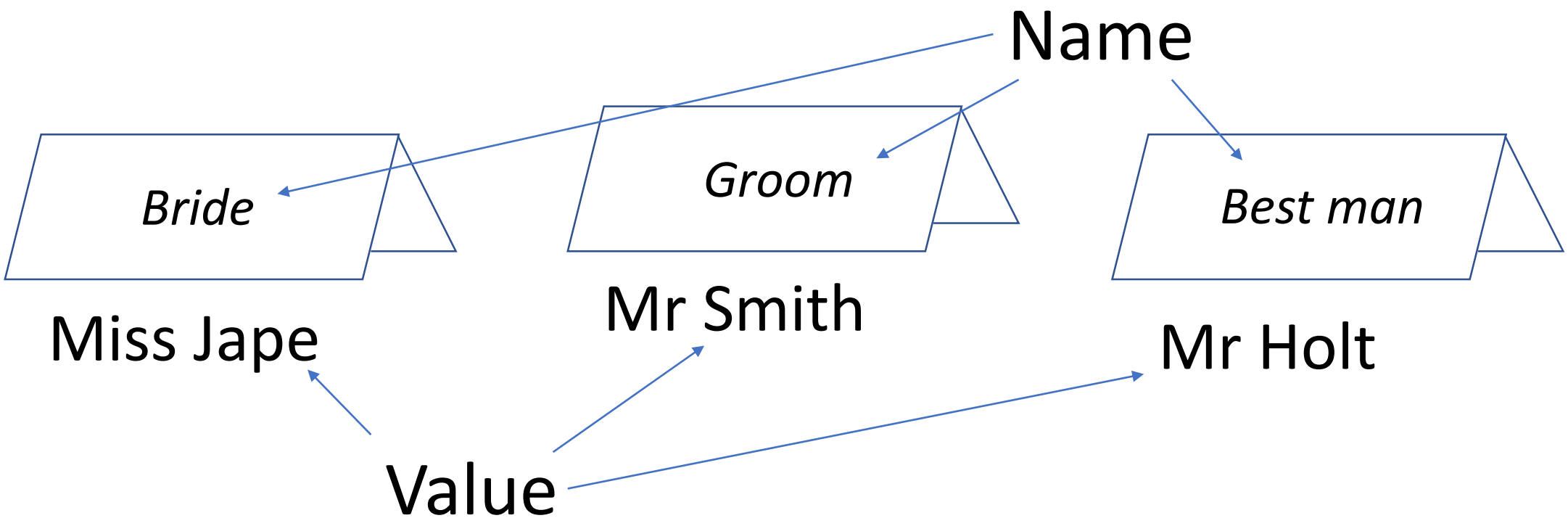
Tell your neighbour how the value of the variable changed every day

Monday Red car

Tuesday Yellow car

Wednesday Empty

Everyday variables Wedding Planning



St Jude Wedding Service 9-10 am

What has changed?

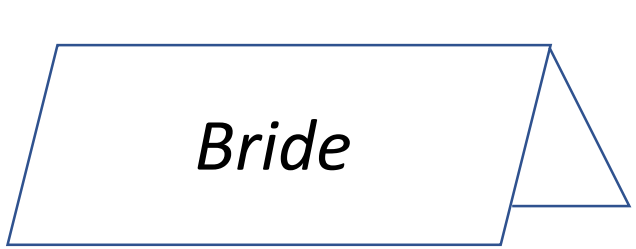
Sade

Derrick

Mr Peters

St Jude Wedding Service 10-11:20 am

What has changed?



Sade

Derrick

Mr Peters

The values have changed as it is a new wedding later in the morning

St Jude Wedding Service 10-11:20 am

What value is assigned to the Groom variable?

Sally King

Peter Dock

Mr Chow

St Jude Wedding Service 1-3 pm

What value is assigned to the Groom variable?

Sally King

Peter Dock

Mr Chow

St Jude Wedding Service 1-3 pm

Explain to your partner how the Bride variable value changes?

Weddings at St Judes	*Bride*	*Groom*	*Best man*
9-10 am	Miss Jape	Mr Smith	Mr Holt
10-11:20 am	Sade	Derrick	Mr Peters
1-3 pm	Sally King	Peter Dock	Mr Chow

Explain to your partner how the Bride variable value changes?

Weddings at St Judes

9-10 am Miss Jape

10-11:20 am Sade

1-3 pm Sally King

Wait until 9am

Assign Miss Jape to Bride variable

Wait until 10am

Assign Sade to Bride variable

Wait until 1pm

Assign Sally King to Bride variable

Everyday Procedures

A set of instructions grouped together to carry out a task that can be used lots of times

Everyday procedures

I have taught my dog to beg, roll over, and shake paw. She does these things when I say beg, roll and shake.

What procedures have been taught to the dog?

Everyday procedures

I have taught my dog to beg, roll over, and shake paw. She does these things when I say beg, roll and shake.

What procedures have been taught to the dog?

beg, roll, shake

Everyday procedures

I have taught my dog to beg, roll over, and shake paw. She does these things when I say beg, roll and shake.

Choose one of the procedures taught to the dog. Write a simple procedure algorithm to show what instructions might be included.

Everyday procedures

I have taught my dog to beg, roll over, and shake paw. She does these things when I say beg, roll and shake.

Can you think of any other procedures that could be taught to the dog?

Everyday procedures

I have taught my dog to beg, roll over, and shake paw. She does these things when I say beg, roll and shake.

Can you think of any other procedures that could be taught to the dog?

Sit and stand up are common ones but you might have others

Everyday procedures

I have taught my dog to beg, roll over, and shake paw. She does these things when I say beg, roll and shake.

How many times can the owner use a procedures?

Everyday procedures

I have taught my dog to beg, roll over, and shake paw. She does these things when I say beg, roll and shake.

How many times can the owner use a procedures?

As many times as they want

Everyday procedures that your brain already knows how to do

Walking

Getting dressed

Eating

Breathing

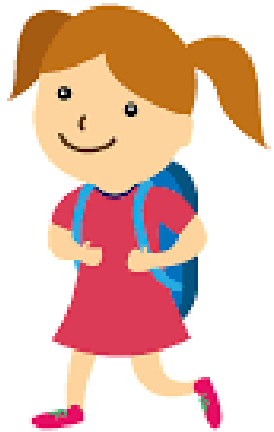
Jumping

Hopping

Can you think of any more everyday brain procedures?

Common everyday procedures that your brain already knows how to do

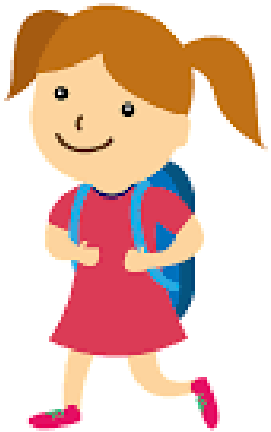
Define **walk**
Move right leg forward
Wait
Move left leg forward
wait



Common everyday procedures that your brain already knows how to do

Define **walk**
Move right leg forward
Wait
Move left leg forward
wait

Define **eat**
Put food in hand
Lift hand to mouth
Put food into mouth
Loop until a paste
chew
swallow

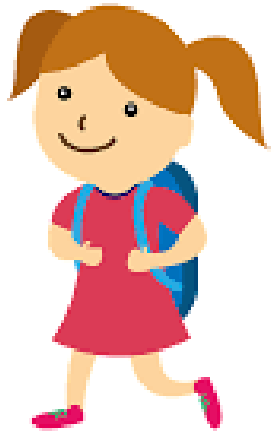


Common everyday procedures that your brain already knows how to do

Define **walk**
Move right leg forward
Wait
Move left leg forward
wait

Define **breathe**
Breathe in
Wait
Breathe out
wait

Define **eat**
Put food in hand
Lift hand to mouth
Put food into mouth
Loop until a paste
chew
swallow



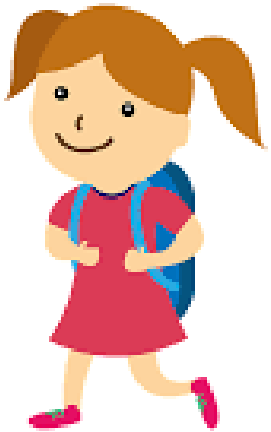
Common everyday procedures that your brain already knows how to do

Define **walk**
Move right leg forward
Wait
Move left leg forward
wait

Define **breathe**
Breathe in
Wait
Breathe out
wait

Loop always
breathe

Define **eat**
Put food in hand
Lift hand to mouth
Put food into mouth
Loop until a paste
chew
swallow



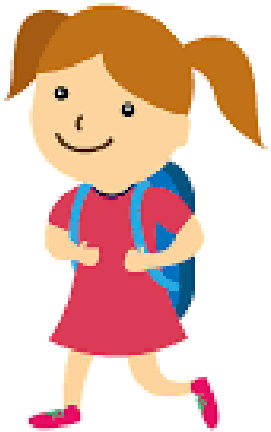
Common everyday procedures that your brain already knows how to do

Define **walk**
Move right leg forward
Wait
Move left leg forward
wait

Define **breathe**
Breathe in
Wait
Breathe out
wait

Loop always
    breathe
    if need to go somewhere
        walk

Define **eat**
Put food in hand
Lift hand to mouth
Put food into mouth
Loop until a paste
        chew
swallow

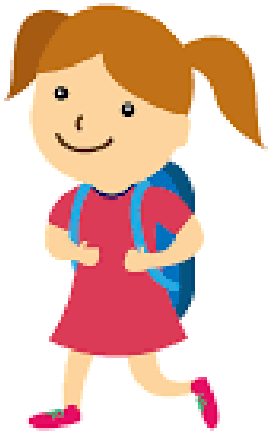


Common everyday procedures that your brain already knows how to do

Define **walk**
Move right leg forward
Wait
Move left leg forward
wait

Define **breathe**
Breathe in
Wait
Breathe out
wait

Define **eat**
Put food in hand
Lift hand to mouth
Put food into mouth
Loop until a paste
    chew
swallow



Loop always
    breathe
    if need to go somewhere
        walk
    if hungry AND food near
        eat

Computing Theory

- Developing key concepts before coding reduces cognitive load and develops an understanding separate from code making an idea more portable between algorithm and different programming languages.
- This resource has been developed for block based programming and you will notice that it often uses slightly different language from Scratch which helps pupils to develop an idea separate from code.
- Supporting Articles with research links
  - Review of cognitive load theory for computing
  - Difference between algorithm and programming
  - Does writing algorithms improve pupils understanding of concepts?
  - Introducing variables to novice programmers