Computing Systems and Networks – Sharing Information
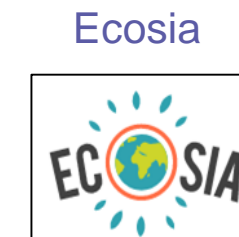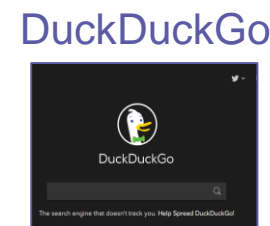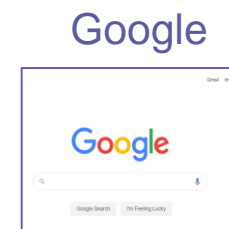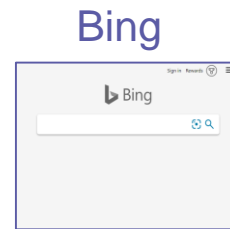
Knowledge Building Blocks:

- To recognise that a system is a set of interconnected parts which work together.
- To explain that computers can be connected together to form IT systems.
- To identify that data can be transferred between IT systems.
- To recognise inputs, processes, and outputs in large IT systems.
- To describe the role of a particular IT system in their lives.
- To relate that search engines are examples of large IT systems.
- To describe the input and output of a search engine.
- To demonstrate that different search terms produce different results.
- To explain why search engines create indices and that they are different for each search engine.
- To explain the role of web crawlers in creating an index.
- To explain how search results are selected.
- To explain that ranking orders search results to make them more useful.
- To explain how ranking is determined by rules, and that different search engines use different rules.
- To explain why the order of results is important and to whom.
- To explain how search engines make money by selling targeted advertising space.
- To identify some of the limitations of search engines.
- To evaluate the results of search terms.

input

output

output

Bing

Google

Swisscows

DuckDuckGo

Ecosia
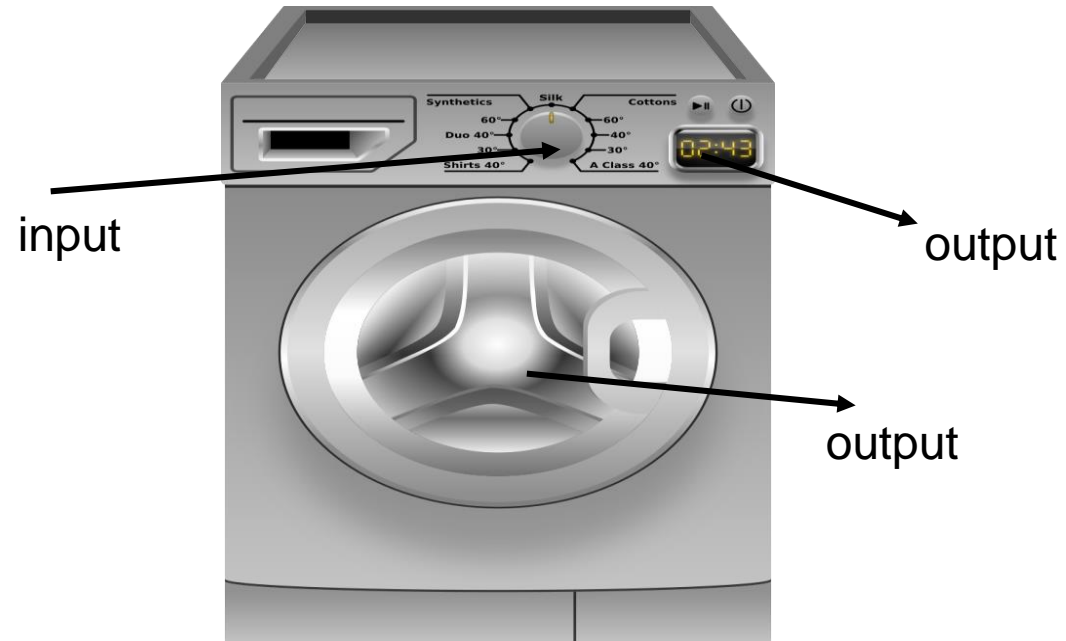
Key Vocabulary:

system
interconnected
IT system
data
transferred
inputs
processes
output
search engine
indices
web crawler
index
ranking
rules
advertising
limitations
evaluate
components
digital system
physical
electronic
device
instructions
address bar
World Wide Web

Knowledge Building Blocks:

- To explain the features of video as a visual media format.
- To recognise which devices can and cant record video.
- To use different camera angles.
- To use pan, tilt and zoom.
- To explain the purpose of a storyboard.
- To identify features of a video recording device or application.
- To combine filming techniques for a given purpose.
- To recognise that filming techniques can be used to create different effects.
- To determine what scenes will convey your idea.
- To recognise the need to regularly review and reflect on a video project.
- To explain the limitations of editing video on a recording device.
- To identify that videos can be edited on a recording device or on a computer.
- To identify videos can be improved through reshooting or editing.
- To choose to reshoot a scene or improve later through editing.
- To decide what changes I will make when editing.
- To use split, trim and crop to edit a video
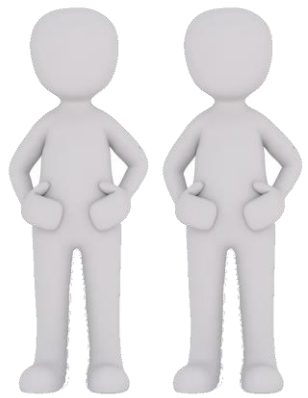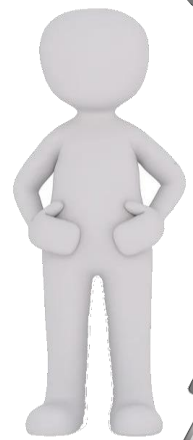
Filming Techniques:
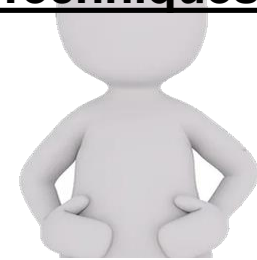
1. Close up
2. Mid range
3. Long shot
4. Moving subject
5. Side by side
6. High, low, or normal

High

Normal

Low

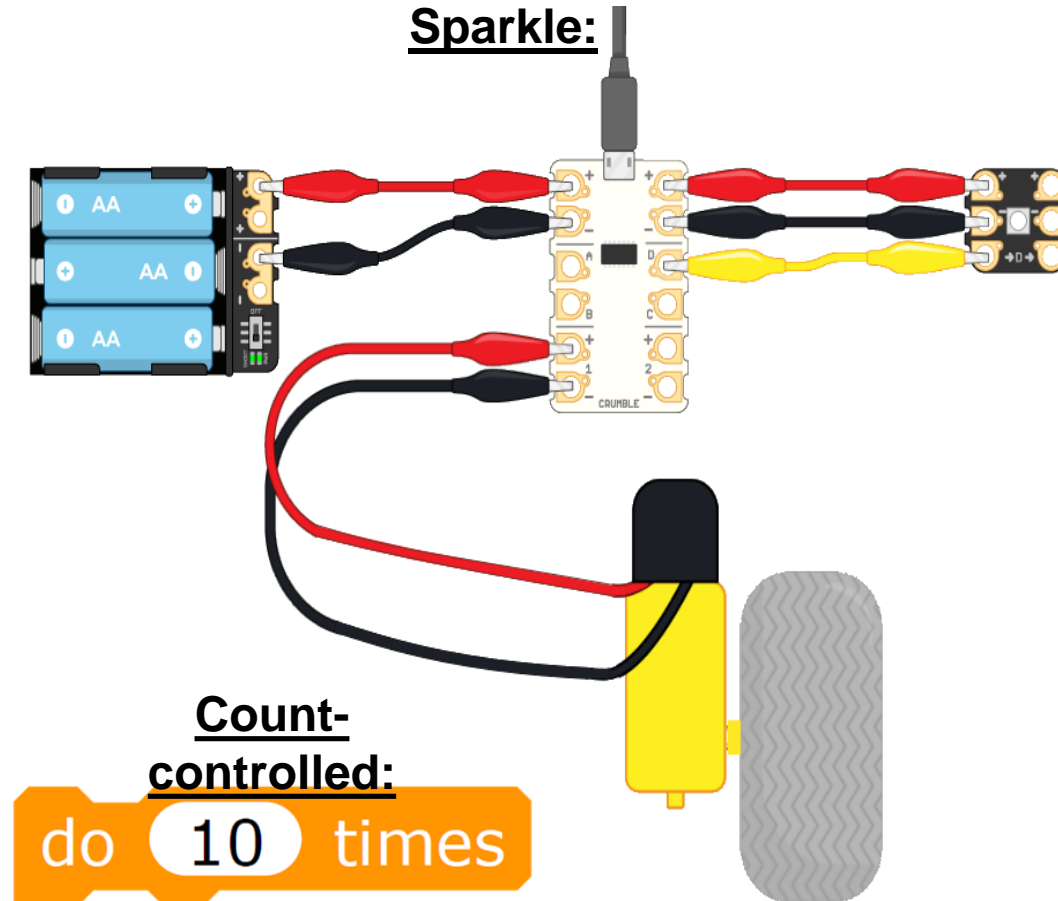## Key Vocabulary:

video
visual media format
device
record
camera angles
pan/tilt/zoom
storyboard
application
filming techniques
review
editing
reshooting
split/trim/crop
exported
production
script
import
evaluate
talking head
close-up
mid range
long shot

Knowledge Building Blocks:

- To explain that a condition can only be true or false.
- To relate that a count-controlled loop contains a condition.
- To compare a count-controlled loop with a condition-controlled loop.
- To explain that a condition-controlled loop will stop when a condition is met.
- To explain that when a condition is met, a loop will complete a cycle before it stops.
- To create a condition-controlled loop.
- To use a condition in an 'if…then…' statement to start an action.
- To explain that selection can be used to branch the flow of a programme.
- To use selection to switch the programme flow in one or two ways.
- To explain that a loop can be used to repeatedly check whether a condition has been met.
- To use a condition in an 'if…then…else…' statement to produce given outcomes.
- To explain the importance of instruction order in 'if…then…else…' statements.

Connecting a Motor and a Sparkle:

Count-controlled:

Key Vocabulary:

condition
true/false
count-controlled
condition-controlled
loop/cycle
statement
action
branch/flow
programme
selection
switch
instruction
crumble controller
sparkle
patterns
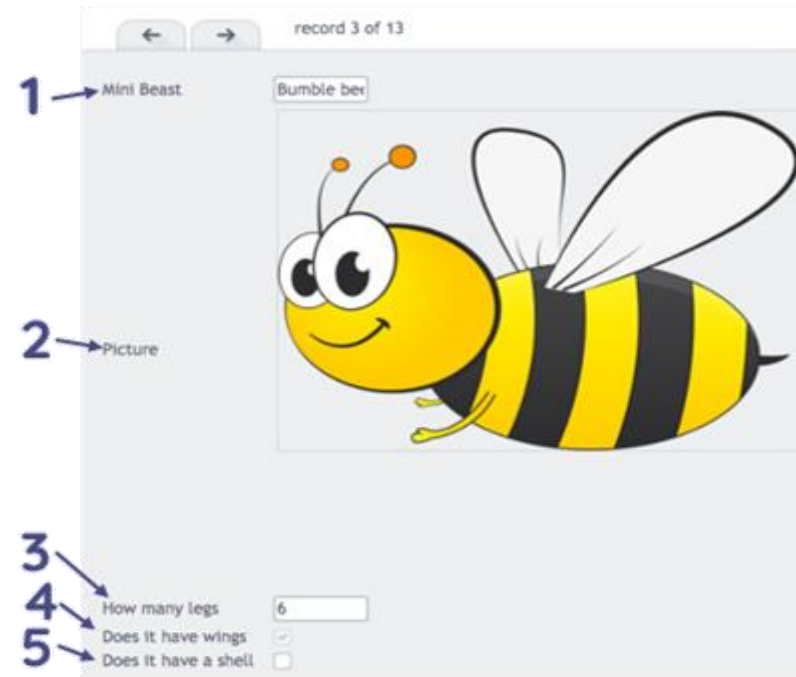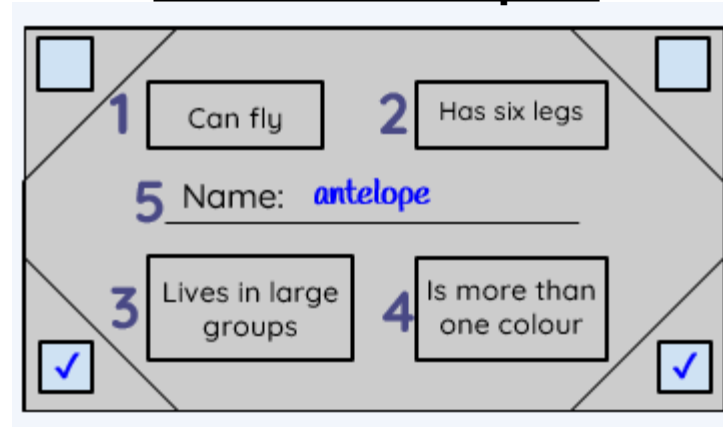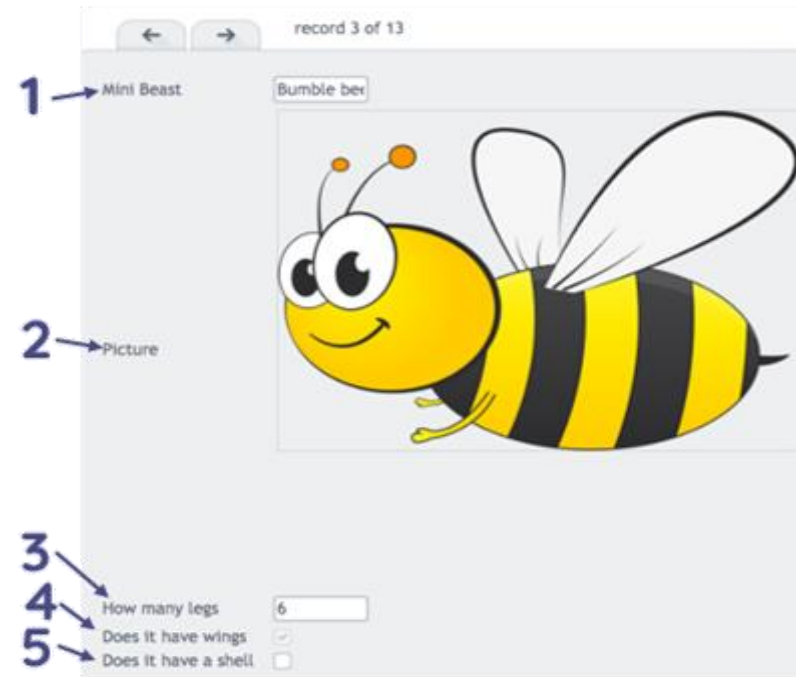motor
sequences
components
input
algorithms
microcontrollers
debug

Data and Information – Flat-file Databases

Knowledge Building Blocks:

- To explain that a computer programme can be used to organise data.
- To choose different ways to view data.
- To explain that tools can used to select data to answer questions.
- To outline how ordering data allows us to answer some questions.
- To outline how operands can be used to filter data.
- To choose which attribute and value to search by to answer a given question.
- To ask questions that need more than one attribute to answer.
- To outline how 'AND' and 'OR' can be used to refine data selection.
- To choose which attribute to sort data by to answer a given question.
- To choose multiple criteria to search data to answer a given question.
- To explain that computer programmes can be used to compare data visually.
- To select an appropriate graph to visually compare data.
- To explain that we present information to communicate a message.
- To choose suitable ways to present information to other people.

Database Examples:

Key Vocabulary:

data
tools
ordering
operands
filter
attribute
refine
selection
sort
criteria
search
programmes
graph
chart
compare
communication
information
database
records
fields
grouping
sorting

Knowledge Building Blocks:
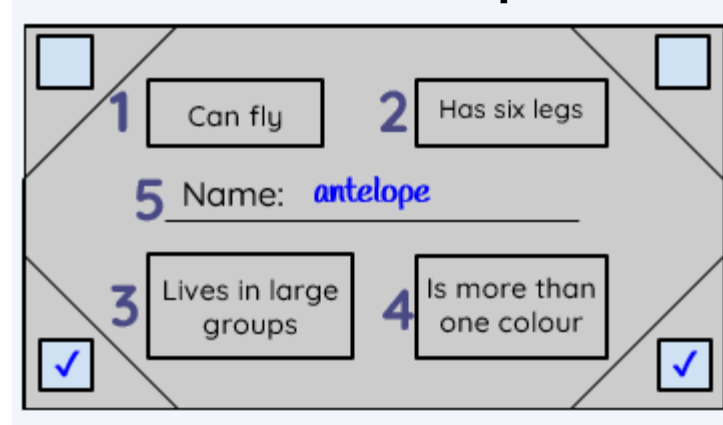
- To explain that a computer programme can be used to organise data.
- To choose different ways to view data.
- To explain that tools can used to select data to answer questions.
- To outline how ordering data allows us to answer some questions.
- To outline how operands can be used to filter data.
- To choose which attribute and value to search by to answer a given question.
- To ask questions that need more than one attribute to answer.
- To outline how 'AND' and 'OR' can be used to refine data selection.
- To choose which attribute to sort data by to answer a given question.
- To choose multiple criteria to search data to answer a given question.
- To explain that computer programmes can be used to compare data visually.
- To select an appropriate graph to visually compare data.
- To explain that we present information to communicate a message.
- To choose suitable ways to present information to other people.

Database Examples:

Key Vocabulary:

data
tools
ordering
operands
filter
attribute
refine
selection
sort
criteria
search
programmes
graph
chart
compare
communication
information
database
records
fields
grouping
sorting

Knowledge Building Blocks:

- To explain that a condition can only be true or false.
- To relate that a count-controlled loop contains a condition.
- To choose a condition to use in a programme.
- To compare a count-controlled loop with a condition-controlled loop.
- To explain that a condition-controlled loop will stop when a condition is met.
- To explain that when a condition is met a loop will complete a cycle before it stops.
- To create a condition-controlled loop.
- To use a condition in an 'if...then...' statement to start an action.
- To explain that selection can be used to branch the flow of a programme.
- To use selection to switch programme flow.
- To explain that a loop can be used to repeatedly check whether a condition has been met.
- To use 'if...then...else...' to switch programme flow in one or two ways.
- To explain the importance of instruction order in 'if...then...else...' statements.
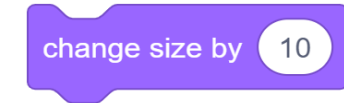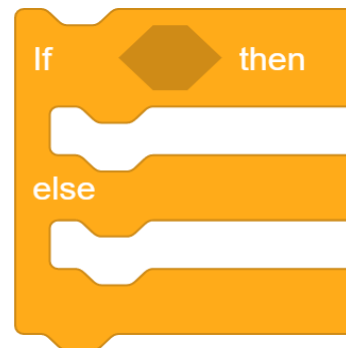
Conditions in Programmes:

Condition: if space bar is pressed

Action: to be carried out when the condition is true
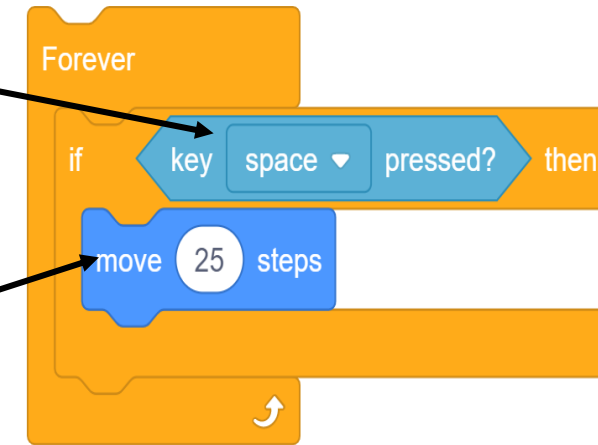
Blocks:

Key Vocabulary:

condition
true/false
count-controlled
loop
programme
condition-controlled
cycle
statement
branch
flow
switch
instruction
blocks
Scratch
modify
algorithms
outcomes
binary question
branching structure
templates
debug
evaluate