# Unit: 4.1
Coding

Key Learning

- To begin to understand selection in computer programming.
- To understand how an IF statement works.
- To understand how to use co-ordinates in computer programming.
- To understand the 'repeat until' command.
- To understand how an IF/ELSE statement works.
- To understand what a variable is in programming.
- To use a number variable.
- To create a playable game.

Key Resources

purple mash
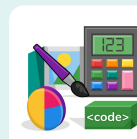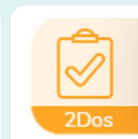
| Tools | 2Dos | 2Chart | Free code gibbon |

Key Vocabulary

Action
Types of commands which are run on an object. They could be used to move an object or change a property.

Alert
This is a type of output. It shows a pop-up of text on the screen.

Algorithm
A precise step by step set of instructions used to solve a problem or achieve an objective.

Bug
A problem in a computer program that stops it working the way it was designed.

Code Design
Design what your program will look like and what it will do.

Co-ordinates
Numbers which determine the position of a point, shape or object in a particular space.

Debug/Debugging
Looking for any problems in the code, fixing and testing them.

Design Mode
Used to create the look of a 2Code computer program when it is run.

Event
Something that causes a block of code to be run.

Flowchart
A diagram which represents an algorithm.

Get Input
This puts the text that a user types into the computer's temporary memory to be used to control the program flow.

2 simple
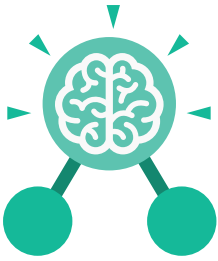
Unit: 4.1
Coding

Key Vocabulary

If
A conditional command. This tests a statement. If the condition is true, then the commands inside the block will be run.

If/Else
A conditional command. This tests a statement. If the condition is true, then the commands inside the 'if block' will be run. If the condition is not met, then the commands inside the 'else block' are run.

Input
Information going into the computer. Can include moving or clicking the mouse, using the keyboard, swiping and tilting the device.

Nesting
When you write a command inside something else eg. a block of commands could be nested inside a timer.

Output
Information that comes out of the computer e.g. sound.

Object
An element in a computer program that can be changed using actions or properties. In 2Code, buttons, characters and vehicles are types of objects.

Prompt
A question or request asked in coding to obtain information from the user in order to select which code to run.

Repeat
This command can be used to make a block of commands run a set number of times or forever.

Repeat Until
This command can be used to make a block of commands run until something certain happens.

Selection
This is a conditional/ decision command. When selection is used, a program will choose a different outcome depending on a condition.
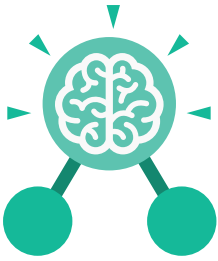
Sequence
when a computer program runs commands in order.

Timer
Use this command to run a block of commands after a timed delay or at regular intervals.

Variable
A named area in computer memory. A variable has a name and a value. The program can change this variable value.

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Unit: 4.1
Coding

Key Images

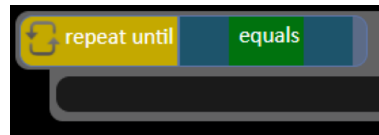|		
Design	Exit Design	change variable
Open design mode in 2Code.	Switch to code mode in 2Code.	A change variable block.

An 'if/Else' command.

Repeat until.
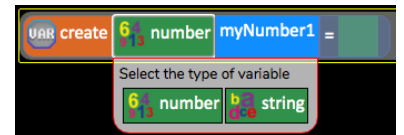
Creating a variable in 2Code.

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Unit: 4.1
Coding

Key Questions

Explain the stages of the design, code, test, debug coding process.

This is a process to go through as you create a program using coding
- Design: Create a design which could be a flowchart, a labelled diagram or a storyboard. This helps to think through the algorithms required
- Code: code the algorithms usbng9in and adapting the design.
- Test and Debug: see if the program works and fix any errors.

How can variables and if/else statements be useful when coding programs with selection?

The variable could be set either to 0 or 1 and this could be changed by user action or a timer. If/else statement outcomes could depend upon the value of the variable. command for selection.

What does selection mean in coding and how can you achieve this in 2Code?

The code will contain commands that require a decision and the next code to run will depend upon the outcome of this decision. In 2Code we used the 'if' command for selection.
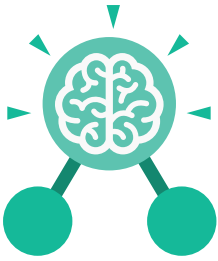
What is the difference between the different object types in 2Code Gibbon level?

The different objects have different properties. This makes then suitable for different type of programs.

- Buttons can only be clicked and have their colour and text changed.
- Vehicles have speed and angle.
- Characters have movement in 4 directions.
- Turtles have rotation, pen up and down.

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Unit: 4.2
Online Safety

Key Learning

- To understand how children can protect themselves from online identity theft.
- To understand that information put online leaves a digital footprint or trail and that this can aid identity theft.
- To identify the risks and benefits of installing software including apps.
- To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism.
- To identify appropriate behaviour when participating or contributing to collaborative online projects for learning.
- To identify the positive and negative influences of technology on health and the environment.
- To understand the importance of balancing game and screen time with other parts of their lives.

Key Questions
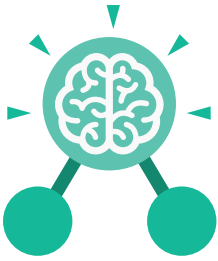
What is meant by a digital footprint?

A digital footprint is the information that exists about a person based upon sites that they have visited, searches that they have done, information that they have shared and other online behaviours.

What is SPAM?

SPAM messages are emails or online messages sent from a computer to many other users. The users are sent the email without requesting it. The purpose of SPAM is for advertising, phishing or malware.

What is meant by plagiarism?

Plagiarism refers to using someone else's work and claiming it to be your own.

Key Resources

purple mash

 2Connect

 2Investigate

 SPAM

2 simple

Unit: 4.2
Online Safety

Key Vocabulary

Computer virus
A piece of code which can copy itself and typically has a damaging effect on the device, such as corrupting the system or destroying data.

Cookies
A small amount of data generated by a website and saved by a web browser. Its purpose is to remember information about the user.

Copyright
When the rights to something belong to a specific person.

Digital footprint
The information about a person that exists on the Internet as a result of their online activity.

Email
Messages sent by electronic means from one device to one or more people.

Identity theft
When a person pretends to be someone else.

Malware
Software that is specifically designed to disrupt, damage, or gain unauthorized access to a computer system.
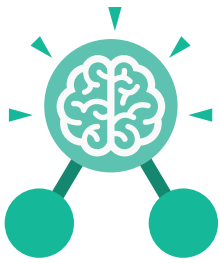
Phishing
Practice of sending email pretending to be from reputable companies in order to persuade individuals to reveal personal information, such as passwords and credit cards numbers.

Plagiarism
When you use someone else›s words or ideas and pass them off as your own.

Spam
Messages sent over the Internet, typically to many users, for the purposes of advertising, phishing or spreading malware.

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Unit: 4.3
Spreadsheets

Key Learning

- To format cells as currency, percentage, decimal to different decimal places or fraction.
- To use the formula wizard to calculate averages.
- To combine tools to make spreadsheet activities such as timed times tables tests.
- To use a spreadsheet to model a real-life situation.
- To add a formula to a cell to automatically make a calculation in that cell.

Key Resources

purple mash

9 × 3 =
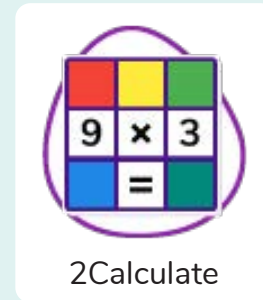
2Calculate

Key Vocabulary

Average
Symbols used to represent comparing two values.

Columns
Vertical reference points for the cells in a spreadsheet.

Equals tool
tests whether the entered calculation in the cells to the left of the tool has the correct answer in the cell to the right of the tool.

Advance mode
A mode of 2Calculate in which the cells have references and can include formulae.

Cells
An individual section of a spreadsheet grid. It contains data or calculations.

Formula
Use the formula wizard or type into the formula bar to create a formula in a cell, this will calculate the value for the cells based upon the value of other cells in the spreadsheet.

Copy and Paste
A way to copy information from the screen into the computer's memory and paste it elsewhere without re-typing.

Charts
Use this button to create a variety of graph types for the data in the spreadsheet.

2 simple
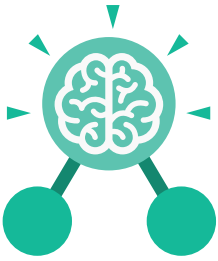
Key Vocabulary

Formula Wizard
The wizard guides you in creating a variety of formulae for a cell such as calculations, totals, averages, minimum and maximum for the selected cells.

Move cell tool
This tool makes a cell's contents moveable by drag-and-drop methods.

Random tool
Click to give a random value between 0 and 9 to the cell.

Rows
Vertical reference points for the cells in a spreadsheet.

Spin Tool
Adds or subtracts 1 from the value of the cell to its right.

Spreadsheet
A computer program that represents information in a grid of rows and columns. Any cell in the grid may contain either data or a formula that describes the value to be inserted based on the values in other cells.

Timer
When placed in the spreadsheet, click the timer to adds 1 to the value of the cell to its right every second until it is clicked again.

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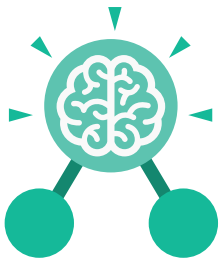
Unit: 4.3
Spreadsheets

Key Images

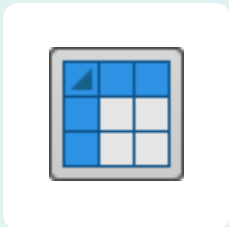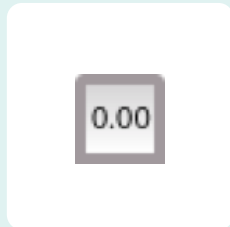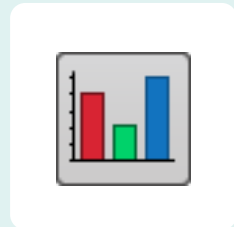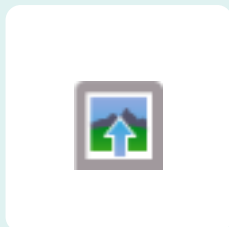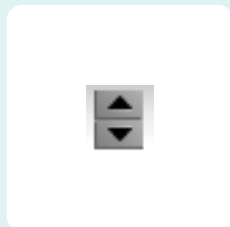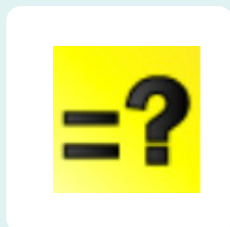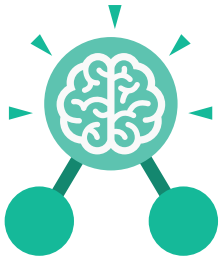|			
Open, close or share a file	Save your work	Open a previously saved file	Increase or decrease spreadsheet size
Advanced mode	Formula Wizard	Format Cell Toolbox	Charts
Totals toolbox	Image Tools	Controls Toolbox	Random Number
Spin	Equals	Timer	
To Copy	To Cut	To Paste	
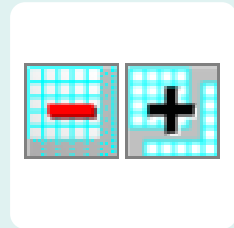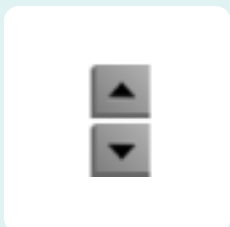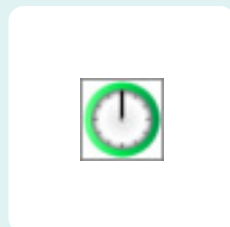
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Unit: 4.3
Spreadsheets

Key Questions

How would you add a formula so that the cell shows the percentage score for a test?

Click on the cell where you want the percentage score to be displayed then click the formula wizard button. Click on the cell that contains the score. Choose the ÷ operation then click on the cell that shows what the test was out of. Click OK. Click on the answer cell and then the formet cell button. Choose % as the format.

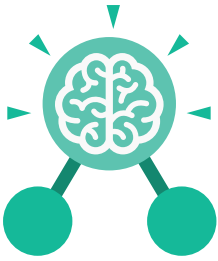### Which tools would you use to create a timed times tables test in 2Calculate?

You could use the random tool, the spin tool, the equal tool and the timer tool.

Give an example of the data that could be best represented by a line graph.

Data where both axes will contain continuous data so that you can see trends in the data. Such as ages and heights, time and temperature, years and costs.

Explain what a spreadsheet model of a real-life situation is and what it can be used for?

It represents the data of a situations for example budgeting for a party, working out how big a field needs to be for a certain number of animals, working out how to spend your pocket money over time.

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Unit: 4.4
Writing for Different Audiences

Key Learning

- To explore how font size and style can affect the impact of a text.
- To use a simulated scenario to produce a news report.
- To use a simulated scenario to write for a community campaign.

Key Resources

purple mash

2Publish Plus

2Simulate

Key Images

A

Text Toolbar. Click here to format your text.

Key Vocabulary

Font
The style of writing one can uses when typing on a document.

Bold
This makea the text stand out.

Italic
A style of formatting when the text is at an angle.

Underline
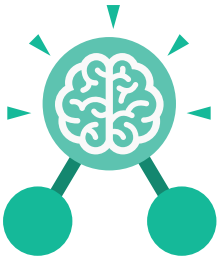To draw a line underneath the font.

Key Questions

Why should I change the font when I am writing?

Changing the appearance of the font can help make things easier to read and highlight important parts of the text.

2 simple

Unit: 4.5
Logo

Key Learning

- To learn the structure of the coding language of Logo.
- To input simple instructions in Logo.
- Using 2Logo to create letter shapes.
- To use the Repeat function in Logo to create shapes.
- To use and build procedures in Logo.

Key Questions

What is Logo?

Logo is a text-based coding language used to control an on-screen turtle to create mathematical patterns.

Key Resources

purple mash

2Logo

Key Vocabulary

LOGO
A text-based coding language used to control an on screen turtle to create mathematical patterns.

BK
Move backwards a distance of units.

FD
Move forward a distance of units.

RT
Turn right a given number of degrees.

LT
Turn left a given number of degrees.

REPEAT
Repeat a set of instructions a specified number of times.

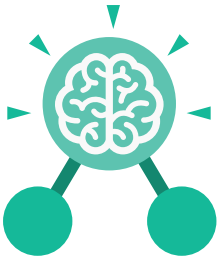**SETPC**
Set pen colour to a given colour.

SETPS
Set the pen thickness.

PU
Lift the pen up off the screen.

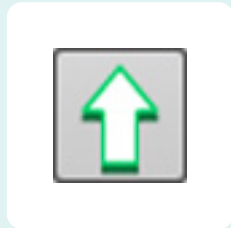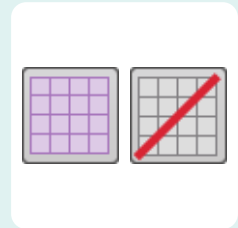**PD**
Put the pen back down on the screen.

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Unit: 4.5
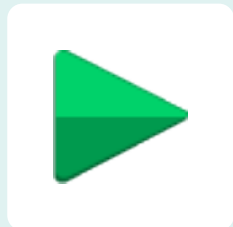## Logo

Key Images

Open, close and share work

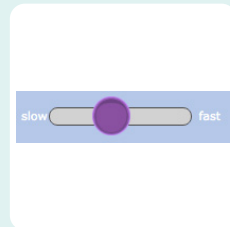**Choose the turtle style**

Choose a background
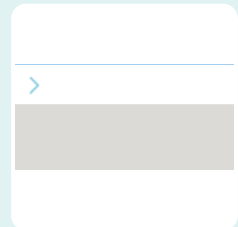
Switch the grid on and off

Press and the logo mouse follows the instructions

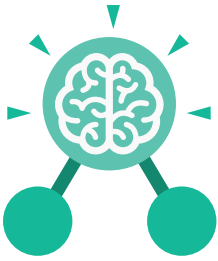**Reset the mouse to the start position**

Change the speed at which the mouse moves

Write the Logo instructions here

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Unit: 4.6
Animation

Key Learning

- To discuss what makes a good animated film or cartoon.
- To learn how animations are created by hand.
- To find out how 2Animate can be created in a similar way using the computer.
- To learn about onion skinning in animation.
- To add backgrounds and sounds to animations.
- To be introduced to 'stop motion' animation.
- To share animation on the class display board and by blogging.

Key Resources

purple mash
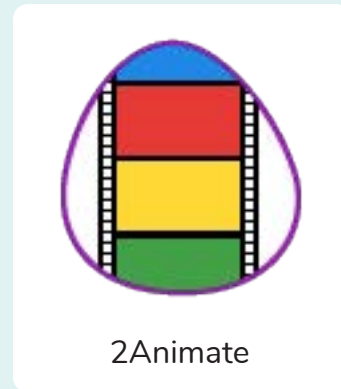
2Animate

Key Vocabulary

Animation
A process by which still pictures appear to move.

Flipbook
A book with pictures drawn in a way that makes them appear to move when the pages are flicked.

Frame
A single image in an animation.

Onion skinning
A process where the shadow image of the previous frame is present to help you line up the objects of the animation correctly.

Background
A non-moving image that appears behind the animated images.

Play
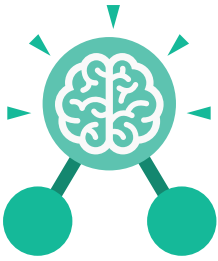Press this button to make the animation start.

Sound
Music or oral effects that can be added to the animation.

Stop motion
A technique whereby the camera is repeatedly stopped and started, for example to give animated figures the impression of movement.

Video clip
A short piece of film or animation.

2 simple

Unit: 4.6
Animation

Key Images

Open, close or share animation.

Add or delete a frame from the animation.

Play the animation.

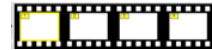Switch onion skinning on or off.

Add a background picture to the animation.

Insert a photograph from a webcam into the animation.

Insert a sound file into the animation.

Number of frames in the animation.

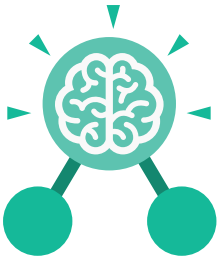## Key Questions

What is an animation?

Animation is the process of giving the illusion of movement to drawings, models, or inanimate objects. Animated motion pictures and television shows are highly popular forms of entertainment.

What is meant by onion skinning?

Onion skinning is a 2D computer graphics term for a technique used in creating animated cartoons and editing movies to see several frames at once.

What is meant by stop frame animation?

Stop motion animation is a filming technique in which objects (such as clay models) are photographed in a series of slightly different positions so that the objects seem to move.

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Unit: 4.7
Effective Searching

Key Learning

- To locate information on the search results page.
- To use search effectively to find out information.
- To assess whether an information source is true and reliable.

Key Resources

2Publish Plus

Key Questions

What is a search engine?

A search engine is a piece of software that allows the user to find and then display pages from the World Wide Web.

Key Vocabulary

Easter egg
An unexpected or undocumented feature in a piece of computer software or on a DVD, included as a joke or a bonus.

Internet
A global computer network providing a variety of information and communication facilities.

Internet browser
A software application used to locate and display Web pages.

Search
To look for information. In this case on the Internet.

Search engine
A program that searches for and identifies items in a database. Used especially for finding sites on the World Wide Web.

Spoof website
Website spoofing is the act of creating a website, as a hoax, with the intention of misleading readers that the website has been created by a different person or organisation.

Website
A set of related web pages located under a single domain name.

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Unit: 4.8
Hardware Investigators

Key Vocabulary

Key Learning

- To understand the different parts that make up a computer.
- To recall the different parts that make up a computer.

Key Resources

purple mash

2Connect

2Quiz

Key Questions

What is the difference between hardware and software?

Hardware refers to the physical parts of a computer or device. The parts inside the computer casing are often called the components. The parts that are attached to the computer case are called peripherals. Software describes the programs that run on the computer.

Motherboard
A printed circuit board containing the main parts of a computer or other device, with connectors for other circuit boards to be slotted into.

CPU
The part of a computer in which operations are controlled.

RAM
Allows programs to store information to help the computer run more quickly.

Graphics card
A printed circuit board that controls the output to a display screen.

Network card
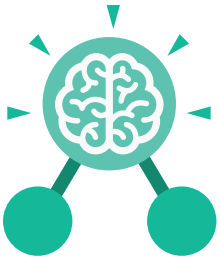An electronic device that connects a computer to a computer network.

Monitor
A screen which displays an image generated by a computer.

Speakers
a device for letting you hear sounds generated by the computer.

Keyboard and mouse
external devices

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Unit: 4.8
Hardware Investigators

Key Images

Motherboard

CPU

RAM

Graphics card

Network card

Monitor

Speakers

Keyboard

Mouse

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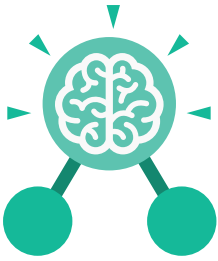Tel: +44(0)208 203 1781 | Email: support@2simple.com | Twitter: @2simplesoftware

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Unit: 4.9
## Making Music

Key Learning

- To identify and discuss the main elements of music.
- To understand and experiment with rhythm and tempo.
- To create a melodic phrase.
- To electronically compose a piece of music.

Key Questions

What is the difference between melody and rhythm?

A rhythm is a pattern of sounds based on the length of the notes and the silences. A melody is a pattern of notes based on the pitch and rhythm, which make up a memorable tune.

Key Resources

purple mash

Busy Beats
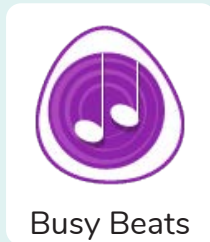
Key Vocabulary

Pitch
How high or low the sound of a note is.

Tempo
How slow or fast a piece of music is.

Melody
A sequence of notes which make up a tune.

Rhythm
A pattern of long and short sounds and silences.

Dynamics
How loud or quiet a sound is.

Rippler
The tool which when clicked, begins the ripple of sound.

Pulse
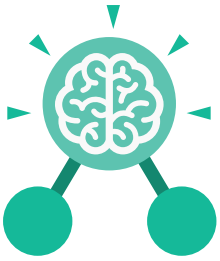The steady beat of a piece of music.

Texture
The way that different sounds and music elements are layered together to create a piece of music.

House music
A style of electronic disco music which uses a range of different beats and synth sounds.

2simple

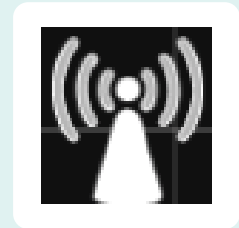# Unit: 4.9
Making Music

Key Images

Open, save and share work.

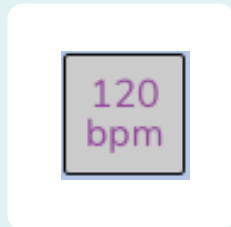Play and add different notes or synths.
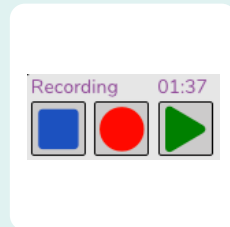

Play and add different sample sounds.

Clicking on the rippler triggers the sounds.

Stop the music by pressing this button.

This changes the speed – beats per minute.

Record, stop recording of replay your work.