Year 3/4

Subject: Computing

Term: Autumn 2, 2023

Knowledge: Coding Everyone can code
Vocabulary: Algorithm, Debugging, bug, loops, abstraction, pattern spotting and parallelism.
Links to any prior units: Tynker lessons 1-6 KS1

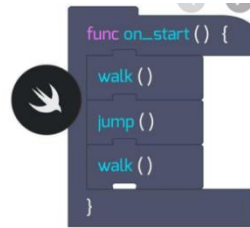| Year 3	Year 4
Esafety/ Online Bullying:	**Esafety/ Online Bullying:**
How does bullying happen online and how does it make you feel?	How does bullying happen online and how does it make you feel?
Comments online that are true/false, kind/unkind.	Excluding people from chats/groups
Do you know who sent the comment? Real account/Fake account?	What is a real friend online and an internet friend?
What to do if this happens?	What to do if this happens?
Coding- Sequencing skills:	**Coding-Sequencing skills:**
Understand that a sequence of instructions in computing is called an	Sequence commands in Swift Code blocks
Algorithm.	Use **abstraction** as a way of making it easier to think about problems.
Use **decomposition** to break the sequence in to manageable steps.	Understand how **functions** help us think more efficiently.
Understand how to approach **debugging** a program or **algorithm**.	**Repeat loops:**
Repeat loops:	Understand what **loops** are and how they can make a program more efficient.
Understand what simple **loops** are and how they can make a program more efficient.	**Pattern spotting** - be able to identify which commands need to be repeated and how many times to achieve a desired end.
Identify repeat loops in everyday life.	**Event handling skills:**
Event handling skills:	Be able to create an animation or game
Be able to create an animation or game using an existing template or scaffold.	**Parallelism** – Allow more than one event to happen at the same time e.g. having more than one set of blocks or instructions running at the same time.
Saving and retrieving:	**Saving and retrieving:**
• Upload work to class Seesaw	• Upload work to class Seesaw

Session no.	Learning Objective and skills covered: **COMPOSITE OUTCOME**
Session 1 (Week 2) 6.11.23	E-safety- Online Bullying.
Vocabulary for this lesson	**Online bulling, cyberbullying, real/ fake account.**
Power Up: (Assessment to check prior learning needed today is secure)	What do we mean by E-safety? What can we remember about staying safe online? Revisit SMART rules- look at safety display

Shared learning and teaching: Small steps of COMPONENT KNOWLEDGE

Online bullying (often referred to as cyberbullying) is any form of bullying that is carried out using electronic media devices, such as computers, laptops, smartphones, tablets, or gaming consoles.

Questions to discuss:

How does bullying happen online and how does it make you feel? Your experience - how does bullying make you feel? - Own It - BBC

What types of comments should you post online? 8-10s: Like (thinkuknow.co.uk) Discuss Alfie's story (Be kind to others).

How to tell if someone is using a real/fake account? 8-10s: Explore (thinkuknow.co.uk) Look at Ellie's story (Things we see online). Recap on safety display add top tips to the Online bullying poster.

 Troll Stinks - YouTube What do Billy and Cyril need to learn from this experience? What advice would you give to the trolls if they were your friends?

Plenary:

Recap on safety display add top tips to the Online bullying poster.

AfL:

Children to discuss in pairs answers to the questions- How does bullying happen online? What is the difference between a real friend online and an internet friend? Identify ways to keep safe online.

Get Started With Code 1: Lessons 6 7 8 (In Tynker, Space Cadet)

Dragon spells lessons (Swift blocks)

Session no.	Learning Objective and skills covered: COMPOSITE OUTCOME
Session 2 (Week 3) 13.11.23	LO: To code using events and actions.
Vocabulary for this lesson	**Event, action, user, code, screen shot**
Power Up: (assessment to check prior learning needed today is secure)	PowerPoint slide

Shared learning and teaching: Small steps of COMPONENT KNOWLEDGE

Introduce new topic- <mark>Everyone can code</mark>.

Event means- an action that causes something else to happen.

Play a game of statues with the class. Stand with your back to the class and the chn must move behind your back. A soon as you turn around, they have to freeze. If you catch them moving, they are out. The rule of the game- the teacher turning around is the **event** and the resulting **action** was the chn freezing. Can children identify any other games where there is an event causing an action?

<mark>Activity:</mark> Children will create a robot remote control.

Discuss who uses a remote control and home and what does it do?

Give students printed remote control and show them the start and stop buttons. They are going to make up their own buttons to tell their robot what to do. Group children into 3's- take turns performing different roles **(person acting as a robot, person pressing the remote and someone to film).**

Discuss how events can give the user options. What's the difference between coding a robot and controlling it with a remote?

Resources:
Printed out remote control. iPads

Plenary:

Upload video/ photo to Seesaw of the group being robots and remote controls.

AfL:

Children to recall that the word event means- an action that causes something else to happen.

Session no.	Learning Objective and skills covered: COMPOSITE OUTCOME
Session 3 (Week 4) 20.11.23	LO: To code using events and actions.
Vocabulary for this lesson	**Event, action, user, code, screen shot**
Power Up: (assessment to check prior learning needed today is secure)	Use PowerPoint slide

Shared learning and teaching: Small steps of COMPONENT KNOWLEDGE

Recap the meaning of **event** when using code. Use example of the statues game, the teacher was the event to cause the action.

Practice:
Tynker: Space Cadet lesson 6
I do- you do. Teacher to model completing each stage touch event (Touch screen to start), collision event (actor to collide with something), tilt event (tilt iPad left or right) and message event (send messages to trigger code).
I do: Model how to screen shot (pressing home button and lock button at the same time).
Children to screenshot then completing the level to be added to seesaw.

Resources:
iPads, log in to Tynker

Plenary:

Add an explanation of what **events** are and provide examples via seesaw.

AfL:
Can the children identify any other apps they have used in school where **events** and actions happen?

Session no.	**Learning Objective and skills covered:** **COMPOSITE OUTCOME**
Session 4 (Week 5) 27.11.23	LO: To understand we can only make actions occur under certain conditions.
Vocabulary for this lesson	**Conditional statements** or **actions**
Power Up: (assessment to check prior learning needed today is secure)	Use PowerPoint slide

Shared learning and teaching: **Small steps of COMPONENT KNOWLEDGE**

Conditional statement or actions occur only under certain conditions.

Can children share some rules they follow in class. As the rules are discussed turn them into **IF statements**. Example: IF we want to speak, we raise our hands, IF we are doing quiet reading, we don't talk.

Turn other things that the children do into IF statements (IF the whistle is blown, we line up on the playground). Explain the IF statement tells what to do when something (a condition) is true. In coding, this is called conditional statements.

Activity: Explain a game project.

Explain games are built around **IF statements.**

I do: Teacher to model playing the game 'Simon say's'.

1. Play Simon says- Remind children they should only do the action IF you say 'Simon say's first.
2. Simon says involves conditional actions- we do the action only IF the leader says 'Simon says' first.
3. You do: Children are to work in pairs to describe a familiar game using IF statements. Using the iPad video each other explaining how to play the game.
4. Pairs to play their game saying the rules as IF statements.

Plenary:

Upload video to Seesaw. Children to watch another pairs instructions to a game and see if they can follow the IF statements to play.

AfL:

Explain to your shoulder partner what an **IF statement** is.

Lesson	**Learning Objective and skills covered:** **COMPOSITE OUTCOME**
Session 5 (Week 6) 27.11.23	LO: Code using IF statements
Vocabulary for this lesson	**Conditional statements** or **actions**
Power Up: (assessment to check prior learning needed today is secure)	Use PowerPoint slide

<table>
<tr><td colspan="2" align="center">Shared learning and teaching:
Small steps of COMPONENT KNOWLEDGE</td></tr>
<tr><td colspan="2">Recap- what is an IF statement and how is it used in coding? An IF statement tells what to do when something (a condition) is true. In coding, this is called conditional statements.

Activity: Tynker Space cadet lesson 7
Explain the IF statements only run the code if the condition is true.
In the puzzles aliens may turn up and the students code must be flexible to react to the changing condition.
Screen shot puzzle to upload to Seesaw.</td></tr>
<tr><td colspan="2">Plenary:</td></tr>
<tr><td colspan="2">Upload screen shot image of their puzzle showing the code.</td></tr>
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AfL:	
Give examples of IF statements in everyday life and games. Explain how the IF statement worked in the app and why it was useful.	

Session no.	Learning Objective and skills covered: COMPOSITE OUTCOME
Session 6 (Week 7) 4.12.23	LO: To write an algorithm to solve a problem.
Vocabulary for this lesson	**Algorithm, bug, debugging, code.**
Power Up: (assessment to check prior learning needed today is secure)	Use PowerPoint slide

Shared learning and teaching: Small steps of COMPONENT KNOWLEDGE

An **algorithm** is a set of step-by-step rules or instructions.
Explain that an algorithm will only work if the order of instructions are very precise. We have already created algorithms in the activities we have completed.
I do: Model how to make a simple recipe (fruit kebab or sandwich). In coding this is called a set of step-by-step instructions an **algorithm**.
You do: Explain a simple recipe to your partner.
Can children think of any algorithms they use e.g. during a science experiment or art project.

Activity: solve the maze.
Explain students are going to make a maze and then write an algorithm for their character to solve the maze.
They can include special features (called hazards) to make the maze more challenging and their special ability to overcome the hazard.
I do-we do:

1. Demonstrate how to draw a character and hazard using Notes and their characters special ability.
2. Using the printed-out maze, identify where to place the hazards and draw in.
3. Then hand out character code cards (**forward/ left/ right/ blank**). Characters special power to go on blank card.
4. Arrange code blocks into correct order (**algorithm**) to solve maze.
5. Take a photo of the algorithm and the maze and add to notes file.
6. Next, children **introduce a bug to their algorithm** by moving around a couple of the cards. Take another photo.
7. Students to swap their iPad with their partner to **debug** their algorithm.

Resources:
Printed out- maze and direction code cards.
iPads using Notes.

Plenary:

Upload both photos to seesaw.

AfL:

Discuss how the students solved the maze by creating an **algorithm**. Explain to class how you can demonstrate instructions in different ways, words, images or symbols.

Session no.	**Learning Objective and skills covered:** **COMPOSITE OUTCOME**
Session 7 (Week 8) 11.12.23	LO: To write an algorithm to solve a problem.
Vocabulary for this lesson	**Algorithm, conditional statements, loops, sequencing.**
Power Up: (assessment to check prior learning needed today is secure)	Use PowerPoint slide

Shared learning and teaching: **Small steps of COMPONENT KNOWLEDGE**

Recap on definition of algorithm. An **algorithm** is a set of step-by-step rules or instructions.

Activity: Tynker Space cadet Lesson 8
I do- you do: Model how to use their new skills to create complex **algorithms** that use **conditional logic**, repetition with loops and sequencing.
Students will get to a creative environment where they can build custom programs (using **loops** and **commands** to make math art).

Screen shot the app to upload to seesaw.

Plenary:

Upload their photo to Seesaw. Add a note to explain their experience with creating an **algorithm**.
What did they most enjoy about creating the maze?

AfL:

Identify what students found easy and difficult about creating an algorithm.