Tackling the Technology Gender Gap Together:

Algorithms for Story Writing

Level – Second Level

Subject area/s – Computing Science and Literacy

Algorithms for Story Writing

The theme of this 'unplugged' (computing science away from the computer) lesson concerns Tudors and Stuarts, but the algorithm cards can be altered to reflect any topic or theme. We will see how we can use algorithms to help plan a story and how if we randomise each step, we can produce something interesting and unpredictable!

LEVEL-

Second Level

SUBJECT AREAS-

Technologies – Computing Science
Literacy and English - Writing

EXPERIENCES AND OUTCOMES-

By considering the type of text I am creating, I can select ideas and relevant information, organise these in an appropriate way for my purpose and use suitable vocabulary for my audience. **LIT 2-26a**
I understand the operation of a process and its outcome. I can structure related items of information. **TCH 2-13a**

WRITING BENCHMARKS- (LIT 2-26a)

Plans and organises ideas and information using an appropriate format.
Makes notes to help plan writing and uses them to create new texts.
Includes relevant information in written texts.
Organises writing in a logical order and as appropriate to audience.

COMPUTING SCIENCE BENCHMARKS (TCH 2-13a)-

Identifies when a process is not predictable because it has a random element for example, a board game which uses dice.
Structures related items of information for example, a family tree.
Uses a recognised set of instructions/an algorithm to sort real worlds objects for examples, books in a library or trading cards.

DURATION OF LESSON- Could be extended and adapted over a term

COMPUTING SCIENCE CONCEPTS AND APPROACHES-

Algorithms- algorithms are the set of steps we need to completely plan our story.

PRIOR LEARNING-

Children will have learned about society in the times of Mary Queen of Scots *in this case*. However this lesson can be adapted easily to a range of themes as the **ALGORITHM CARDS** are editable.

In Literacy and English (Writing, LIT 1-26a**)**, children should have shown evidence they can-

- Plan and organise ideas and information using an appropriate format.
- Include relevant information in written texts.
- Organise writing in a logical order and as appropriate to audience.

In Technologies (Computing Science TCH 1-13a), children should have shown evidence they can-

- Follow sequences of instructions/algorithms from everyday situations for example, recipes or directions, including those with selection and repetition.
- Identify steps in a process and describe precisely the effect of each step.

RESOURCES REQUIRED-

- Full set of ALGORITHM CARDS
- Constructed STORY MOUNTAIN template

OVERVIEW OF LEARNING-

Pupils will use a 'story mountain' planning format, along with a set of algorithms or 'steps' to plan a piece of imaginative writing. They will see how randomising each step, whilst making the story perhaps more tricky to plan, may produce more interesting results.

PUPIL OBJECTIVES-

We are learning to-

- Use algorithms to plan a story
- Use a story mountain planning format

INTRODUCTION-

For second level literacy, children should be armed with a range of planning formats, scaffolded to varying degrees. A story mountain gives them a way to structure their story using common steps, and also helps them improve the pace of their writing. A story mountain is a way of planning a story that helps the children keep in mind that all stories build towards a climax that then needs resolved. It is a visual reminder of the pace of a story and can focus children's pace of writing to avoid an incredibly detailed first few paragraphs that dwindle off just at the point where the story should be reaching a climax. Algorithms in computing science encourage thinking about steps to achieving a goal and they also provide structure. As in computer code, you must follow certain steps to achieve a successful story with these steps being in a set order and indeed having a degree of causality. Your resolution must relate back to your dilemma which in turn needs to be related to your build up. If these story writing algorithms are in the *wrong* order, the resultant story will be poorly paced, or indeed, make no sense at all!

MAIN ACTIVITY-

- Prepare the ALGORITHM CARDS. You may want to increase the size of these to A3. If colour printing is available, you can print on white paper. If printing in black and white, try to print onto the relevant coloured paper to show the difference between the sections. It would be useful to laminate the cards to make them more durable, or print them onto card.
- Introduce the blank story mountain. This could be assembled using the template and, if desired, enlarged to A3 size. Alternatively, use flipchart paper to draw your own. Talk about each key step and explain what they mean.
    - OPENING:
      This section will introduce our main characters. It may also introduce a setting but that may change during the course of the story.
    - BUILD UP:
      This section concerns itself with steps leading up to a problem or dilemma for the characters to face.
    - DILEMMA:
      This section concerns itself with a key problem the characters have to face. In a story this may be a *physical* problem or maybe just a *moral* dilemma.
    - RESOLUTION:
      This section resolves the previous problem.
    - ENDING:
      This section ties up the story and any loose ends.
- At this point, decide whether you wish to choose cards for each section, or if you feel it more appropriate, randomly pick each card! This task can be done whole class, individually or in Co-operative Learning groups. Choose which is most relevant to your class.

- You should begin by choosing **BLACK CHARACTER CARDS**. Choose no more than 3 character cards as these are to be our main characters and any more than 3 will be unmanageable.
- For each character, choose a **GREY CHARACTER DESCRIPTION CARD** (or two, dependant on level of challenge).
- Choose a **RED SETTING CARD** at this point. You may wish to choose more setting cards at different points in the story. There is space on the story mountain to do so.
- At this point, it is key to skip the build-up and consider the dilemma. Use the **GREEN DILEMMA CARDS** to do this. The dilemma section can be augmented with additional detail about characters or setting, by adding more **ALGORITHM CARDS**, or by the children making suggestions of their own.
- Now you know where the story needs to be going, you can consider the build-up. Each section on the build-up could be treated as a paragraph of its own and there is opportunity to add new characters and settings if desired as we did with the dilemma section. Choose or randomise your **PURPLE BUILD-UP CARDS**. With each section of the build-up we should be thinking of how these aim towards the dilemma.
- The penultimate part of our plan is the resolution of the dilemma. This will be specifically related to the card chosen for your dilemma, so you may want the children to come up with their own ideas, but I you may wish to use the **ORANGE RESOLUTION CARDS** to generate ideas!
- The final section on the plan is the ending. Again, depending on the choices made in the rest of the plan, this part of the plan will be very specific. Children should look over their entire story mountain for anything not quite tied up and perhaps use a **BLUE ENDING CARD** to round their story off.
- Children should now have a completed story mountain which they can use to write a story set, in this case, in Tudor/Stuart times!

CHARACTER CARDS

noble	peasant	prince
princess	farmer	servant
maid	thief	priest

CHARACTER DESCRIPTION CARDS

young	wicked	poor
forgetful	selfish	old
adventurous	inquisitive	wealthy

SETTING CARDS

in a cottage in the woods	in the palace kitchen	in a garden maze
in the castle throne-room	on board a ship bound for France	in the castle dungeon
on a horse, riding to town	by the loch	in church

DILEMMA CARDS

trapped	lost	hiding
in battle	rescuing	protecting
solving a puzzle	escaping	looking for

BUILD-UP CARDS

meet the king	hide in the church	stay at the inn
have a sword fight	watch a jousting tournament	build a trap
cross a rickety bridge	hide up a tree	rip the tapestry
discover a map	meet a mysterious old man	lose a valuable ring
go on an epic journey	find a lost dog	run away
get chased by wolves	steal the crown	take a sea voyage

RESOLUTION CARDS

use their imagination to	work together to	remember that
find a	build a	work hard to
try and try again until	destroy the	repair the

ENDING CARDS

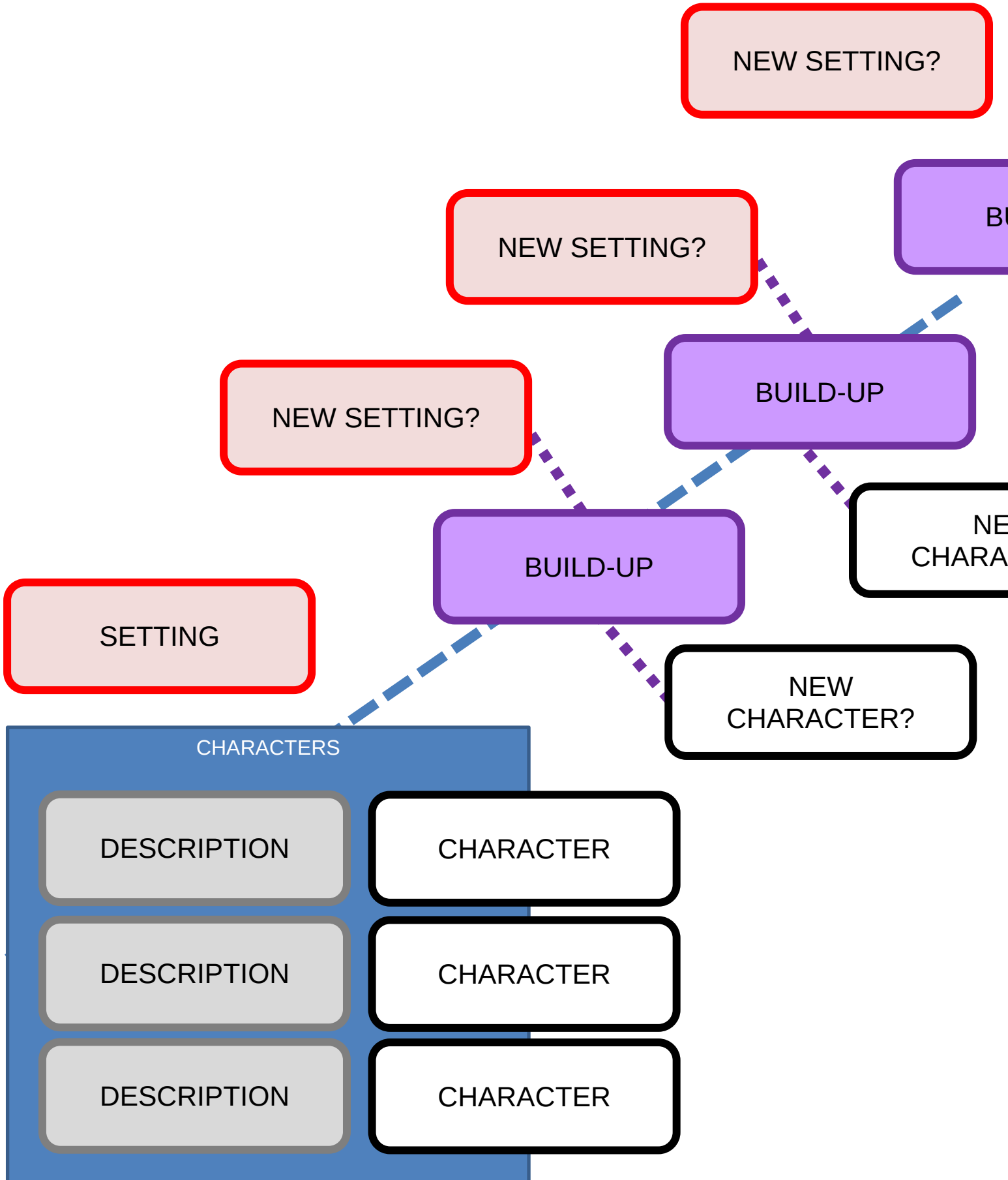
they promised to never again	they realized	they learned
they were glad	they forgot	they returned home to find
they were thankful	they wondered if	they decided

PLENARY-

Before writing their story, have groups or individuals share their story mountain. Look for feedback in the 2 stars and a wish style and allow changes to be made to the story mountains.

EXTENSION/TINKERING-

This task can be made harder by randomising the cards for each section. Alternatively, allow more able pupils to create their own **ALGORITHM CARDS**.
This story can be brought to life using block based coding in Scratch. See https://scratch.mit.edu/ and go to the tutorials to learn more.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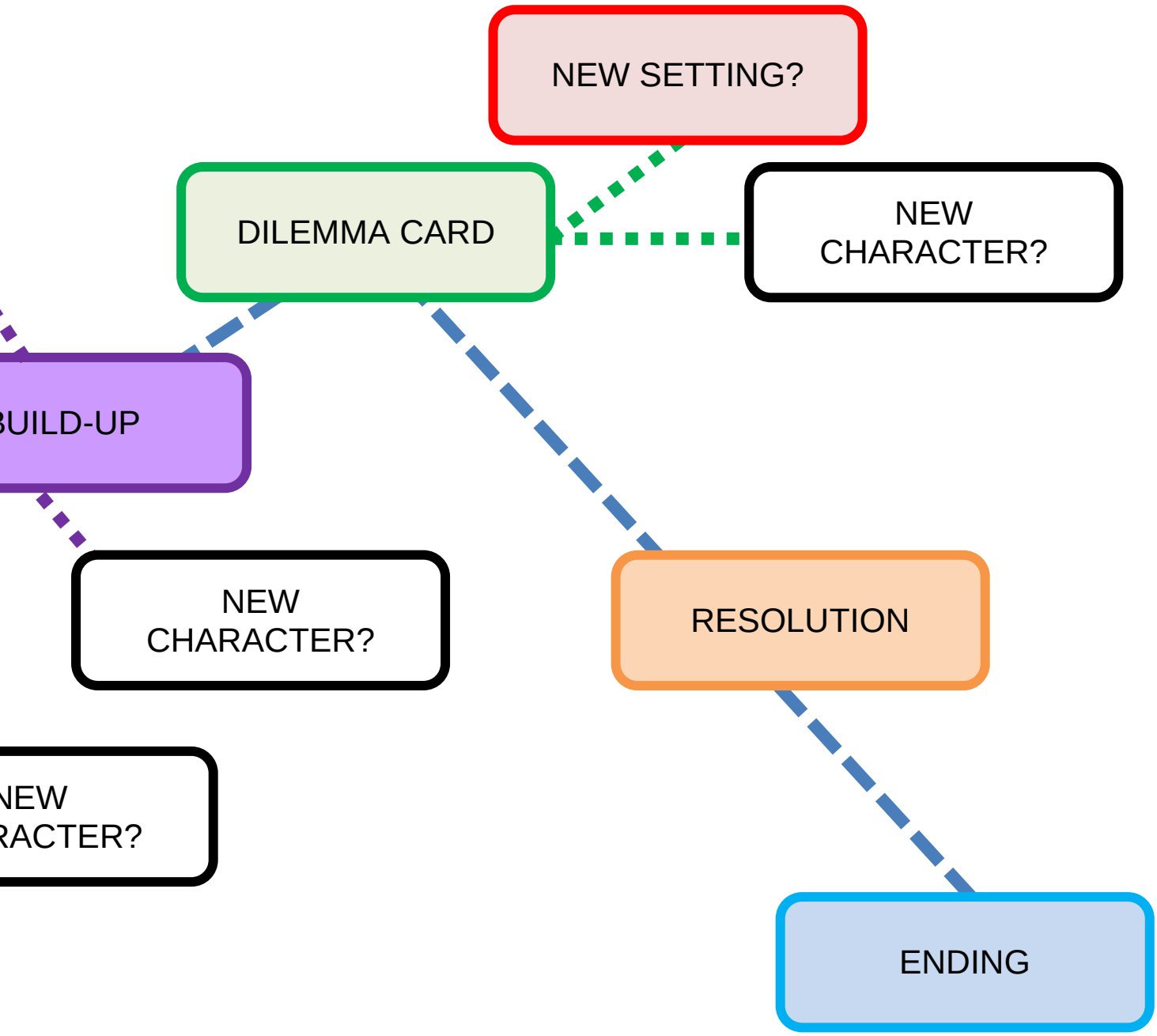

STORY MOUNTAIN