| **Year 1: Computational Thinking with Cubetto**<br>**Unit 1: Lesson 7: Cubetto's Seeds** | • 6 Cubettos and 6 boards<br>• 6 Ancient Egypt maps<br>• 6 sets of blocks (4 of each colour) | **Cross-curricula area:**<br>Science |
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| **NC Objectives** | **Outcomes** | **Computational thinking** | | **Resources provided** | **Resources needed** |
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| | | **Concept** | **Approach** | | |
| To debug a simple algorithm | • I can debug a simple algorithm<br>• I can describe how to plant a seed | Algorithms | Debugging | | • Instructions for planting a seed<br>• Sunflower seeds and water<br>• Algorithms to debug<br>• Pictures of the 'black land' soil |

**Preparation needed**
- Check batteries.
- Check video.
- Ask pupils to bring in a yoghurt pot filled with soil each.
- Cover the tables with newspaper.

**Teacher-led introduction**
1. Show timelapse video of germinating seed: https://www.youtube.com/watch?v=eKo5F87A8a0
2. Ask: What is happening in this video? Discuss how long it takes before the seedling shows above the **soil** [about four days].
3. Ask: What do plants need to grow? ***Sunlight***, ***water*** *and the weather not too warm or too cold.*
4. Show the algorithm for planting a **seed** on the board with one step missing or wrong e.g. fill pot with soil; poke hole half way down; _____ ; cover with soil; water the seed.
5. Read the instructions together and ask: Are these instructions correct? Collect responses without correcting or confirming.
6. Model following the instructions as shown and check with pupils at each stage. When the problem is reached, ask: Will this work? What's wrong/missing? What should it say instead?
7. Explain that working out and fixing what is wrong with an algorithm is called **debugging**.
8. Pass round the seeds for pupils to touch and taste (if they want to!).
9. Explain that today the children will be debugging algorithms to **programme** Cubetto and following instructions to plant seeds.

**Key vocabulary**
Soil
Sunlight
Water
Seed
Debugging
Programme

**Guided activity**
1. Show the pictures of the land on the edge of the River Nile and discuss.
2. Explain that the Ancient Egyptians named it 'Black Land' because of how dark the soil was when wet.
3. Ask: Can you remember the five steps for planting a seed? Collect and discuss.
4. Allow time for pupils to collect their pot, adjust the amount of soil if necessary, poke a hole not too deeply and plant their seed.
5. Hand out the water and support the children to pour a small amount onto the soil and write their name on the pot with a marker pen.
6. Ask: Where is a good place to leave these seeds to grow?
7. Children discuss and decide where to leave their plant, and check on it over a week to note its progress.

**Challenge**
Can you write a problem algorithm for someone else to debug?

**Independent activity**
1. Look at the algorithm on the sheet *e.g. Start at sphinx, end at palm tree (facing N): left, forward, forward, left, forward.*
2. Do you think this will work? Why/why not? Is there a block missing or a problem? *Should read: left, forward, forward, right, forward.*
3. If there is a problem, work out what it is and how you can fix it.
4. Do you need to add another block? Do you need to change a block for a different one?
5. Test out your algorithm to see if it now works.
6. Do you need to try again?

**Creative play**
Role play being a Pharaoh (a King) in Egypt.

**Plenary and assessment**
1. Ask: What does debugging mean?
2. Show two algorithms: one with and one without a problem. Ask: Can you tell me which algorithm has a problem? Why do you think that?
3. Ask: How could you use the function block to use fewer blocks? Discuss.
4. Ask volunteers to share their seedlings and explain how they planted them and why they chose the location for them to grow in.