Loti-Bot's Great Adventure

Develop children's programming and mathematical skills, while they plan Loti-Bot's Great Adventure!

SKILLS AND LEARNING

- Learn about Loti-Bot's different sensors.
- Design, write and debug programs using Loti-Bot's different inputs and outputs.

- Estimate, measure and record lengths.
- Work collaboratively with others.

RESOURCES

- Loti-Bot and App
- Materials to create a Loti landscape such as cardboard, boxes, paper, tunnels, etc.
- Stopwatches
- Rulers including metre rule
- Large paper or desk for drawing Loti'-Bot's route

INTRODUCTION

Look at the different features of Loti-Bot and the app as a whole class. Give children some time to explore each of the inputs and outputs in small groups.
As they find a feature, encourage them to write it on a sticky note and create your own collaborative Loti-Bot user manual.

Discuss – have children used any other robots/devices that they can programme in different ways? What are the similarities and differences that they can see?

ACTIVITIES

Children will create their very own Loti landscape that they can explore with Loti-Bot! They may want to create landmarks, tunnels, obstacles, people to meet or places for Loti to visit.

When they have created their Loti Land, can they plan some different journeys for Loti that test out the different features (inputs and outputs) they identified earlier.
For example:
- With Loti's pen down, they could plan and track their journey. What pattern have they made? Could they measure the total distance that Loti has travelled by measuring each of the lines?
- They could change Loti's speed to test and time Loti's journey using stopwatches.
- Could they find a shorter route for Loti-Bot to make the journey?
- They could programme the sounds, LED lights or bumper sensors as Loti moves around the landscape, such as a honking horn as Loti passes a friend.

As children explore, bring in aspects of literacy, by encouraging them to tell stories about Loti-Bot's Great Adventure

REFLECTION

Encourage children to share and reflect on their Loti journeys:
- Did you use all of Lot's inputs and outputs in your programs?
- Which is your favourite programmable feature?
- What would you do differently next time?
- Were there any features we did not identify at the start of the lesson?

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Loti-Bot : The Shape Explorer

Use Loti-Bot to explore and develop skills in programming and coding, whilst embedding learning around shape, space and measure.
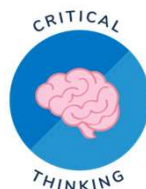
SKILLS AND LEARNING

- Develop skills in control and programming.
- Design, write and debug simple programs.
- Use sequence and repetition in programs.

- Identify, describe and compare the properties of 2D shapes.
- Use and develop critical thinking skills.

RESOURCES

- Loti-Bot and App
- Selection of 2-D shapes (regular and irregular)
- Bee-Bot Shape Mat
- Pens
- Large paper or desktop for drawing using Loti-Bot
- Rulers or metre sticks

INTRODUCTION

Today, Loti will be helping us. to extend our learning about shapes. If they have not met before, introduce learners to Loti-Bot and the Loti app, or if they have worked with Loti before, spend some time recapping the different features, focussing on those that will be used today such as the pen mechanism, and drawing

Review children's knowledge and understanding about the properties of 2-D shapes (you may want to tailor the shapes you use, based on children's prior learning). You could look at regular and irregular shapes, exploring the different properties, including sides and angles within the shape.

ACTIVITIES

Activity 1 – Properties of shapes
- Using a shape mat (the Bee-Bot shape mat is ideal), ask children to set each other challenges to programme Loti to travel between shapes based on their properties. For example, can you make Loti travel from a shape with three sides to a shape with 4 right angles? Children will need to use their skills of estimating or measuring to calculate the distance and plan their route.

Activity 2 – Drawing shapes with Loti-Bot
- Challenge children to first choose a 2-D shape from a selection of shapes and then programme Loti-Bot to draw that shape using the adjustable pen mechanism. For example, can you draw a triangle with Loti-Bot? They will need to bring together their knowledge of programming, length, shape and angles.
- You could add additional challenge, by asking them to ensure the sides are the exact same length as the original. Or, make the shape larger or smaller than the original, e.g. draw a triangle that is two times bigger?
- For regular shapes, children can explore including the repeat function, for example when drawing a square.
- If the shape drawing goes wrong, ask them to review, reflect and debug their program.

REFLECTION

Embed children's learning by finishing with a quick debugging activity. Show children a program for drawing a triangle (or other shape), but make sure there is at least one error in it. Ask children to try and spot the mistake and suggest what they would change.

Reflect on what the children have learnt today about both programming and shape properties.

Loti-Bot Around the World

Explore and learn about different countries, continents and oceans around the world by programming Loti-Bot to take a worldwide trip!

COMPUTING & ICT

MATHS NUMERACY

HISTORY & GEOGRAPHY

CRITICAL THINKING

SKILLS AND LEARNING

- Design, write and debug programs.
- Understand what algorithms are and how they work.
- Work with various forms of input and output.

- Estimate, measure and record lengths.
- Use world maps to name and locate countries, continents and oceans.

RESOURCES

- Loti-Bot and App
- World Map (e.g. Bee-Bot world map)
- Flag cards from countries around the world

INTRODUCTION

Recap prior learning with Loti-Bot, including how to programme Loti within the app using either of the block-based environments (depending on prior learning of your pupils). As a quick reminder, create your own class top tips/hints to remember when using Loti-Bot.

Explain that today we will be helping to take Loti-Bot on their first holiday around the world! Share and introduce the large world map, looking closely at the countries they may be visiting with Loti, based on the flag cards you have chosen.

ACTIVITIES

Children will have the challenge of programming Loti-Bot around the world map to reach different destinations. Start by choosing two (or more) flag cards and locating the countries. Use the different block-based environments on the app to plan and programme Loti to travel from one destination to the next. Children will need to measure the distances and turns in order to design the correct algorithm to use in Loti's app.

Check the route and if not correct, can they debug their program? You could also use Loti-Bot's pen function to draw the route on the map.

To extend learning, you could add some extra challenge to the activity in different ways, such as:
- Ask children to programme Loti's LED lights to change colour to match the flag as they cross the border.
- Can Loti-Bot visit a country that is further away or maybe one that is closer?
- You could also ask children to draw and place landmarks from around the world and challenge them to travel between different landmarks, being careful not to knock them over!
- Include 'no-go' zones, so Loti has to avoid certain oceans or countries on route, making the journey planning more difficult.
- You could even bring in learning about the points of the compass to describe Loti-Bot's journey!

REFLECTION

Review your class top tips from the beginning of the session.
- Do we still agree with these for programming Loti-Bot?
- Is there anything you would change?
- Is there anything you would add to the list now?

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