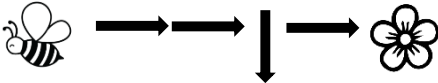
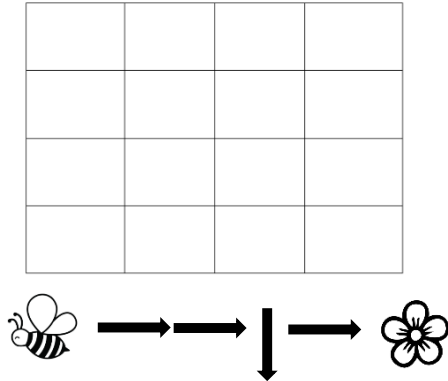
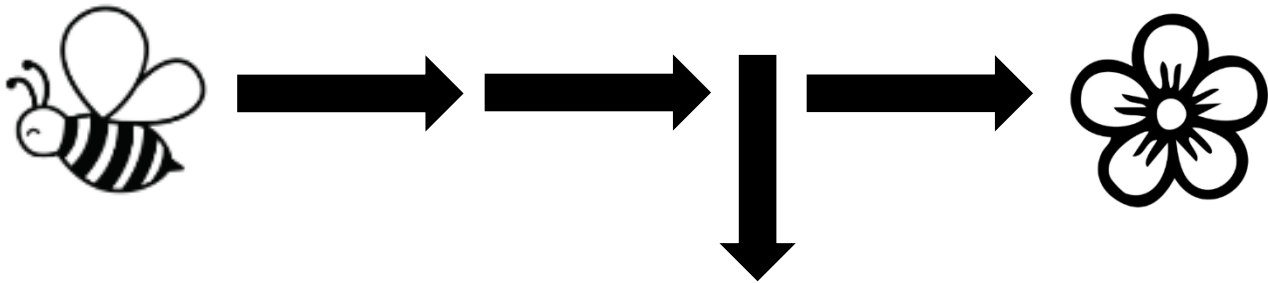


GRADE R TERM 4 CODING & ROBOTICS			
Topic: Spring		2 x 30 minute lessons per week	
TERM 4 WEEK 1	COMPETENCIES	TEACHER GUIDELINES for PRACTICAL ACTIVITY	RETRIEVAL PRACTICE
Learning Intentions: Learners will learn to ... - Interpret and execute a given set of direction cards on a grid (C3) - Find and fix an error in a given code (C4) - Explain what technology is and how it makes our work easier (D1)	C3 C4	<u>Problem Statement</u> The little bee is flying around. Help the bee get to the flower. Resources: A large floor grid 4X4 floor grid Picture of a bee and a flower. Direction cards: - move right - move left - move down - move up Activity 1: Place the bee in one corner of the grid. Place the flower in another location on the grid. The bee needs to find the flower. Use picture cards  Learners "code" the bee path and execute it. One learner gives the steps the other executes them with a bee or with their body. The teacher repeats the code but makes the mistake, learner finds and corrects the code. Flash recall: Hold 3 direction cards for 5 seconds. Hide them and ask learners to recall the exact order. The 'bee' got lost in the spring garden! Can you remember how it goes to the flower?	Learning how to give instructions to help the bee find the flower just like a robot or a computer follows steps to do something. Extension activity Add obstacles (e.g. puddles the bee can't land in) 
	COMPETENCIES	TEACHER GUIDELINES for THEORY	

	D1	What is technology? Discuss tools that makes our life easier, e.g. broom, hammer, saw etc Appliances are also technology – vacuum cleaner, drill, stove, etc How does it make our life easier? - knives, forks, scissors, etc	
Success Criteria: I can:	➤ Read the direction cards in order and move one block for each card ➤ Say where the bee will land before I move it ➤ Point to the card that is wrong and say why it is wrong ➤ Correct that card and run the code again to check it ➤ Name three tools or appliances that make our work easier ➤ Say what each of those tools helps us to do		

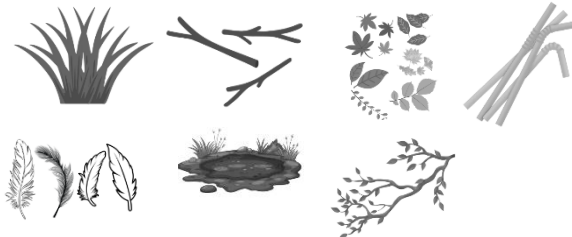
Activity 1: Resources



GRADE R TERM 4 CODING & ROBOTICS

Topic: Birds

2 x 30 minute lessons per week

TERM 4 WEEK 2	COMPETENCIES	TEACHER GUIDELINES for PRACTICAL ACTIVITY	RETRIEVAL PRACTICE
Learning Intentions: Learners will learn to ... ➤ Choose only the materials that suit the task (C1: abstraction) ➤ Present a sequence of steps for building the nest (C2) ➤ Interpret and execute a given set of symbolic instructions (C3) ➤ Explain how robots help people in everyday life (R4)	C1 C2 C3	Problem statement: Mother bird hatched 5 chicks/ hatchlings and now she must build a nest for them, how can we assist her building a safe and strong nest for her chicks? Resources: coding cards, pictures, 5X5 grid, material card, Activity 1: The teacher asks learners to look at the pictures of the nests (next page) and choose from the materials given in the box the ones that can build a hanging nest with.  The teacher gives them coding cards having symbolic commands and asks them to interpret them. The teacher gives learners a grid to execute the code.	Activity 2: Learners look at different types of nests, investigate them and start abstracting unwanted materials. Learners present their sequence of how to build the hanging nest. Four learners take the coding cards and each start interpreting and executing them.
	COMPETENCIES	TEACHER GUIDELINES for THEORY	
	R4	Use a story or discussion to explain what impact means, e.g. Lindi the Library robot helps organize the books. How did Lindi help?	Give more examples of the impact of robots (How they help)
Success Criteria: I can...	➤ Sort the materials into ones I will use and ones I will not use ➤ Say why each material I chose is a good choice for a hanging nest ➤ Place the building steps in order and describe them to my group ➤ Follow the code cards on the grid, one step at a time ➤ Give one example of a job a robot does that helps people		



Platform nest



Hanging nest



Pending nest



Cavity nest



Cup nest



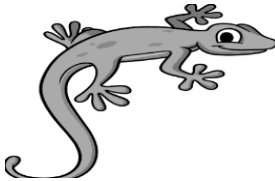
Community nest



							
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GRADE R TERM 4 CODING AND ROBOTICS			
Topic: Reptiles 2x30 minute lessons per week			
TERM 4 WEEK 3	COMPETENCIES	TEACHER GUIDELINES for PRACTICAL ACTIVITY	RETRIEVAL PRACTICE
Learning Intentions: Learners will learn to ... ➤ Interpret and execute a given set of commands (C3) ➤ Compare two solutions and choose the better one (C5) ➤ Demonstrate an understanding of the concept of a computing device (D3) ➤ Explain input, process and output using a familiar example (D7)	C3 C5	PROBLEM STATEMENT: Lizzy the lizard is hungry and needs to run after the fly in the garden. Resources: coding arrows, 4X4 grid, pictures of insects and animals Give the lizard instructions to get to the fly. Activity 1: In pairs, one learner will be the instructor, and the other learner will be the lizard (robot)  Evaluate and find the shortest route.	Activity 2: Learners will use the same grid to help the lizard get to the fly but using the shortest route (5-7 steps). Learners can change the starting point to create more opportunities.
	COMPETENCIES	TEACHER GUIDELINES for THEORY	
	D3 D7	What is a computational device in their own words? What data does it store? Thumbs-up and thumbs-down if learners cannot give own examples and teacher must help with examples What happens when you send an emoji?	
Success Criteria: I can:	➤ Give my partner one instruction at a time ➤ Follow my partner's instructions exactly as they are given ➤ Count the steps in each of the two routes ➤ Say which route is shorter and why that makes it better ➤ Name a computing device and one kind of data that it stores ➤ Say what goes in, what happens and what comes out when I send an emoji		

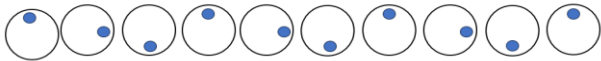
			
			
			



GRADE R TERM 4 CODING & ROBOTICS

Topic: Dinosaurs

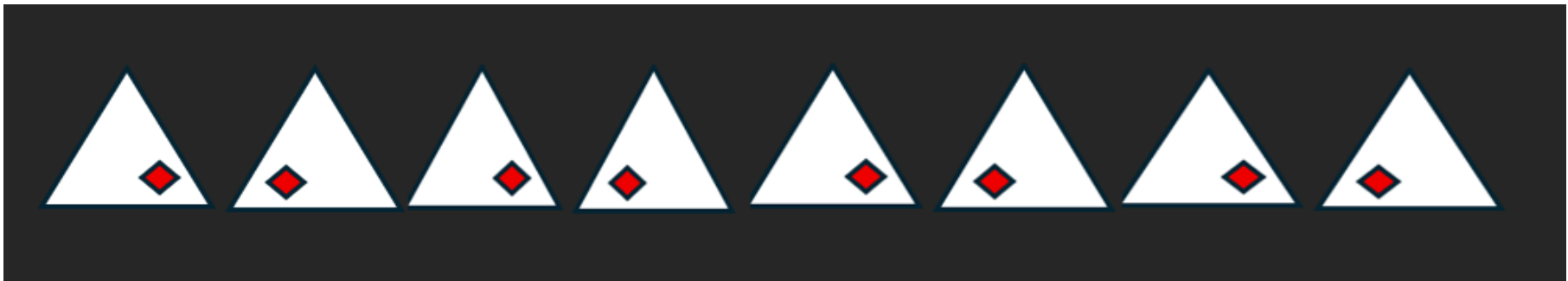
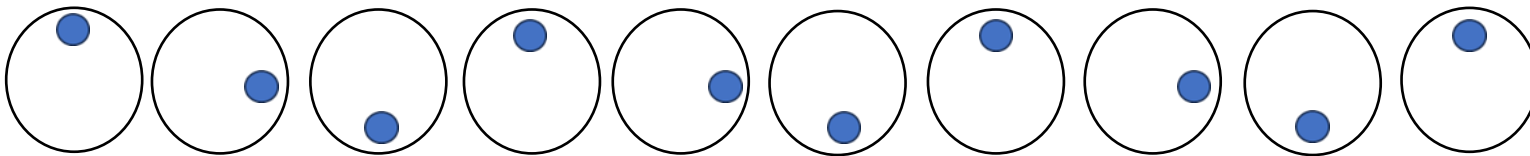
2 x 30-minute lessons per week

TERM 4 WEEK 4	COMPETENCIES	TEACHER GUIDELINES for PRACTICAL ACTIVITY	RETRIEVAL PRACTICE
Learning Intentions: Learners will learn to ... - Recognise a pattern in a set of objects (C6) - Describe a pattern by saying which part repeats (C6) - Complete a pattern by adding what comes next (C7) - Explain what a robot is (R1) - Identify robots among machines, people and animals (R2) - Say how robots change the way people work (R4)	C1 C6	Problem statement: Zukie received lots of dinosaur toys from her mother. She wants to line them up in different ways. Can you help Zukie make patterns with her dinosaurs? Activity 1: - Look at the dinosaur pattern. - Explain the pattern   Teacher asks learners to explain a pattern presented as a data set	Activity 2: The teacher can use different dinosaur toys or dinosaur picture cards to create patterns. In small groups, learners discuss the patterns and decide why they are patterns. (Find the sequence / what repeats / etc) Learners talk about the patterns with their classmates.  - Encourage learners to describe their patterns (e.g. "red dinosaur, blue dinosaur, red dinosaur, blue dinosaur"). - The difficulty of the patterns should match each learner's ability. - Learners identify and interpret the patterns they see.
	COMPETENCIES	TEACHER GUIDELINES for THEORY	
	R1 R2 R4	What Is a robot? Make thumbs-up, thumbs-down statements, e.g. Can a robot think on its own? Can they perform a task on their own? Can robots be harmful? Explain. Show pictures of vacuum robot, medicine delivery robot, a real girl, a normal lawnmower and a assembly line robot that puts cars together They must identify the robots	Discuss the impact a vacuum cleaner robot or medicine delivery robot will have. https://www.youtube.com/watch?v=oElPujz32M0&t=13s

Success Criteria:**I can:**

- Point to the part of the dinosaur pattern that repeats
- Describe the pattern out loud, for example red dinosaur, blue dinosaur
- Say whether a set is a pattern or not, and give my reason
- Point to the robot when the teacher shows me several pictures
- Say that a robot cannot think for itself
- Give one way a robot helps us and one problem a robot may cause

Term 4 Week 4 Resources

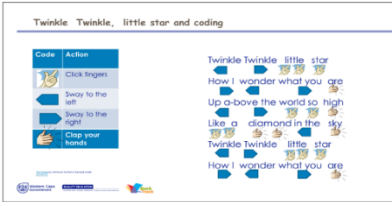
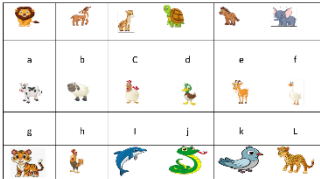


Term 4 Week 4 Resources

GRADE R TERM 4 CODING & ROBOTICS

Topic: Wild Animals

2 x 30-minute lessons per week

TERM 4 WEEK 5	COMPETENCIES	TEACHER GUIDELINES for PRACTICAL ACTIVITY	RETRIEVAL PRACTICE
Learning Intentions: Learners will learn to ... ➤ Interpret a picture code to read a message (D8) ➤ Create a message of my own using a picture code (D9) ➤ Explain that technology is anything that helps us do a job more easily (D1)	D8:	Problem Statement: Bophelo wants to interpret and write a message using code. Please help her do that successfully. Resources A card with symbols representing actions Animal flashcards (with letters to code) Activity 1 The teacher provides learners with symbol to represent the action Learners do the symbols and actions on their own. 	Activity 3: Learners work in pairs to use the letters and the pictures to make up their friends' names. Activity 4: Learners create their own secret code
	D9:	Activity 2 The teacher shows learners the poster with letters and pictures and flashcards with the pictures. Learners code their own names using the flashcards. Example Amo =  	
	COMPETENCIES	TEACHER GUIDELINES for THEORY	

	D1 Show familiar objects (pencil, cell phone, light switch, kettle, hammer, toaster) How do they help us? D2 Too much screen-time is unhealthy. Use one of the technology objects to demonstrate what else you can do to keep yourself busy without a screen D3 Look at the familiar pictures or identify the computational device(s) you can see in your class D7 Use kettle and water that boil or toaster to make toast – learners explain what is: input – process - output	
Success Criteria: I can:	➤ Match each picture card to the correct letter ➤ Read a short coded word out loud ➤ Build my own name using the picture cards ➤ Build a friend's name and let them check it ➤ Name two tools we use every day and say what job each one does	

Twinkle Twinkle, little star and coding

Code	Action
	Click fingers
	Sway to the left
	Sway to the right
	Clap your hands

Twinkle Twinkle little star



How I wonder what you are



Up a-bove the world so high



Like a diamond in the sky



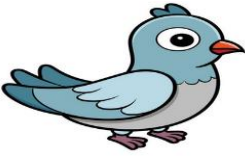
Twinkle Twinkle little star

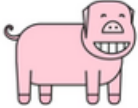


How I wonder what you are



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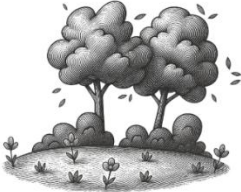
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GRADE R TERM 4 CODING & ROBOTICS

Topic: Finding out about one wild animal

2 x 30 minute lessons per week

TERM 4 WEEK 6	COMPETENCIES	TEACHER GUIDELINES for PRACTICAL ACTIVITY	RETRIEVAL PRACTICE
Learning Intentions: Learners will learn to ... ➤ Design a simple artefact that meets a set of design specifications (R5) ➤ Make and test the artefact, and say how it could be improved (R5) ➤ Create, test and execute a set of instructions for the artefact (R7) ➤ Act out the operations of a robot for a partner (R6) ➤ Name the parts of a robot and say what each part does (R3)	R5 R6 R7	Problem Statement: Lena the baby owl fell from her nest. Design an artifact that will help her get back to her nest. Resources: 4x4 Floor Grid, Coding instructions, recycling material, scissors, glue stick Activity 1: Learners will design (draw) any artifact using provided resources and explain to a friend how you would make it (algorithm). The learner will build it and see if it works. Activity 2: The teacher will provide learners with floor grid marked with start and end point and coding instructions. Learners create a route for the artifact to take Lena back to her nest using coding instructions One learner will represent an artifact, and one will be an instructor. He/she will be giving instructions to the artifact. The artifact will follow the instructions as they are. Learners will take turns.	Activity 3: How does the artifact work to get the bird to its nest?
	COMPETENCIES	TEACHER GUIDELINES for THEORY	
	R1 R2 R3	Compare a person and a medicine robot with each other. What is the same and what is different? Why do we say the assembly line robot is a robot? What does it have to do its job well? Does it have legs? Why not How do assembly line robots help the factories? Can it have a negative impact as well? (e.g. people that lost jobs)	
Success Criteria: I can...	➤ Draw my design and explain it to a friend before I build it ➤ Build my artefact using the materials I was given ➤ Say whether my artefact worked and what I would change next time ➤ Pack out a code that moves the artefact from the start block to the nest ➤ Follow my instructor's code exactly, one step at a time ➤ Point to a robot's body, its sensors and its power source, and say what each is for ➤ Say one way a robot and a person are the same and one way they are different		



GRADE R TERM 4 CODING & ROBOTICS

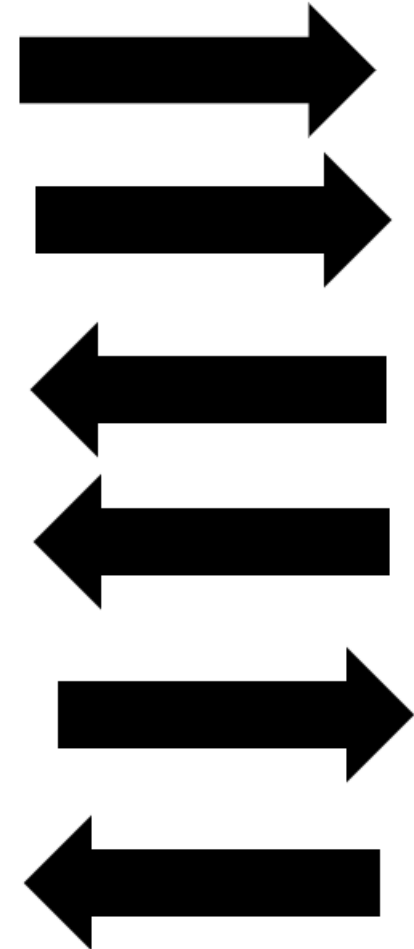
Topic: Sport

2 x 30-minute lessons per week

TERM 4 WEEK 7	COMPETENCIES	TEACHER GUIDELINES for PRACTICAL ACTIVITY	RETRIEVAL PRACTICE
Learning Intentions: Learners will learn to ... - Interpret and execute a given code on a floor grid (C3) - Evaluate a given solution and suggest an improvement (C5) - Distinguish between a tool and a computing device (D1, D3) - Explain input, process and output (D7)	C3 C5	Problem Statement: Leon's uncle bought him a brand-new soccer ball, but now he cannot remember where he left it. Help Leon find his missing ball. Resources: 5x5 Floor grid, Arrows, Pictures/real objects Activity 1: Help Leon Find His Soccer Ball! Teacher note: Use the arrows provided to create different codes. Prepare one code for each group in your class. <i>(The same grid can be used with different starting points to have different coding solutions).</i> Learners will work in groups of 5–6. The teacher provides each group with a different coding solution to help Leon find his soccer ball. Using a floor grid, learners will act out the code by physically moving according to the instructions. Activity 2: After testing the given solution, learners must evaluate it and work together to find a simpler and more efficient way for Leon to reach his soccer ball.	Activity 3: Revision activity - Work in small groups. - Each group makes a path on the floor grid using simple code cards (e.g. forward, turn, stop). - The teacher swaps the codes so each group gets a new one from another group. - Learners follow the code on the floor grid, one step at a time. - When they finish, they talk about: - Was it easy to follow? - Did it work correctly? - How could we make it better?
	COMPETENCIES	TEACHER GUIDELINES for THEORY	
	D1 D2 D3 D7	Show familiar objects (pencil, cell phone, light switch, kettle, hammer, toaster) Put all the objects on a grid Learners must create a code to something that is not a computational device Learners must now create a coding solution to a computational device Use the bread, toaster, toast / water, kettle boil, steam pictures. Learners must pack it in input, process, output order	Learners can be asked to follow the codes and indicate whether they found a tool or a computational device The teacher provides coding solutions to the different pictures. Learners execute the coding solutions and indicate TOOL or COMPUTATIONAL DEVICE. They then decide how to improve one of the coding solutions
Success Criteria: I can:	➤ Walk the code on the grid exactly as it is given ➤ Say whether the code worked or not ➤ Suggest one change that makes the code shorter ➤ Try the new code and check that it still reaches the ball ➤ Say whether an object is a tool or a computing device, and give my reason		

➤ Place the bread, toaster and toast pictures in input, process, output order

Resources Term 4 week 7 (Starting point can be changed to create different coding solutions.)



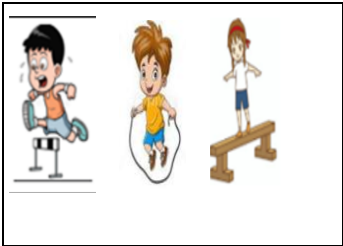
GRADE R TERM 4 CODING & ROBOTICS

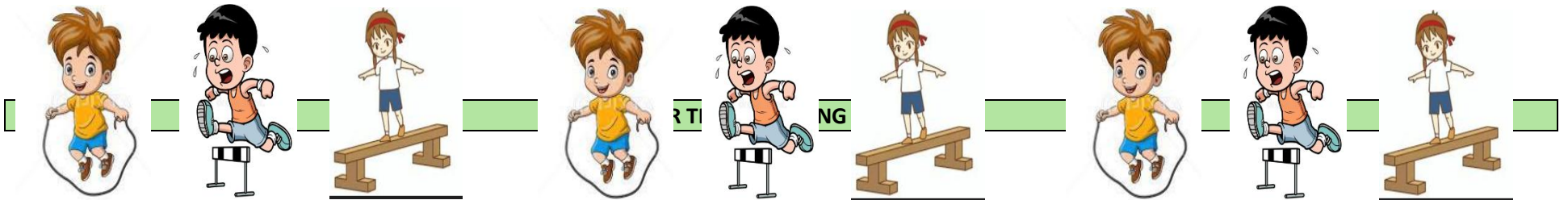
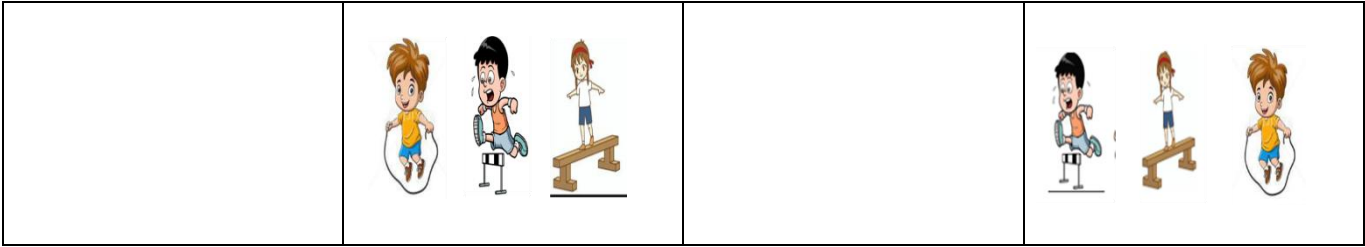
Topic: Sports	2 x 30-minute lessons per week
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Topic: Sports	2 x 30-minute lessons per week
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Term 4 Week 8 Resources



Topic: Special Days			
2 x 30 minute lessons per week			
TERM 4 WEEK 9	COMPETENCIES	TEACHER GUIDELINES for PRACTICAL ACTIVITY	RETRIEVAL PRACTICE
Learning Intentions: Learners will learn to ... ➤ Decide which items are needed for the task and which are not (C1: abstraction) ➤ Plan the order in which the items will be collected (C1) ➤ Present my coding solution to the class (C2) ➤ Interpret and execute a given set of symbolic instructions (C3) ➤ Find and fix mistakes in my own code (C4)	C1 C2 C3 C4	Problem statement: Sipho's family is going on a picnic. Help them find the things they need for the picnic. Resources: coding cards, pictures, 5X5 grid, materials card Activity 1: The teacher shows learners pictures of picnic items needed for a picnic. The teacher asks learners to use the grid to collect the equipment for the picnic. The teacher gives them coding cards to collect items. NB: Observe if they can identify errors and correct them.	Activity: • Learners look at different objects in the grid and identify which objects are needed for the picnic and remove the ones that are not needed. • Learners decide on the order in which to collect the picnic items. • They explain or show their sequence to the class. • They follow the directions using the coding cards to collect the picnic items. • Learners check if the code works correctly. • If they find a mistake, they correct it and try again.
	COMPETENCIES	TEACHER GUIDELINES for THEORY	
Success Criteria: I can...	➤ Remove the objects that are not needed for a picnic and say why ➤ Say the order in which I will collect the items ➤ Pack out my code and explain it to the class ➤ Follow the code on the grid, one step at a time ➤ Say where the code goes wrong ➤ Correct the code and run it again to check that it works		

Term 4 Week 9 Resources



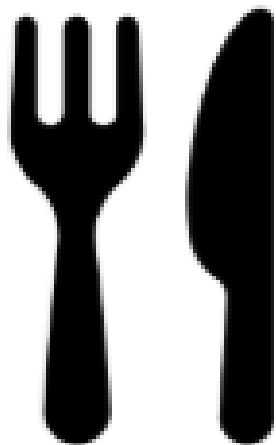
Picnic basket



Paper plates and cups



Spade



Cutlery



Fridge



Picnic blanket



GRADE R TERM 4 CODING & ROBOTICS

Topic: Festivals and Special Days

2 x 30 minute lessons per week

TERM 4 WEEK 10

COMPETENCIES

TEACHER GUIDELINES for PRACTICAL ACTIVITY

RETRIEVAL PRACTICE

Learning Intentions:
Learners will learn to

- Present a simple coding solution using arrow cards (C2)
- Create, test and execute a set of instructions (R7)
- Check another group's code and correct any errors (C4)

C2
R7

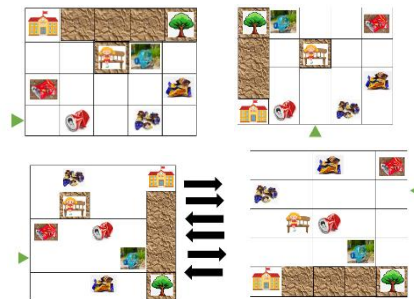
Problem Statement: School is closing for the holidays. Help clean the playground by giving instructions to pick up litter and keep the school neat.

Activity 1: Learners will create their own codes to clean up the school ground.

Resources: 2 grids (5x5), 2 grids (5x4) Coding cards.

- Divide learners into small groups.
- Each group creates a code to help collect the paper litter on the school grounds.
- Groups present and test their coding solutions on the grid.
- Learners check their code and fix any mistakes (debugging).
- Groups rotate and receive another group's code.
- Learners follow the new code on the grid and see if it works.
- They correct any errors they find and then create a new coding solution.

PLEASE NOTE: the learners do not have to pick up all the papers in one coding solution. Allow them to see how much they can pick up in 1 coding solution.



On the grid, the teacher provides practical activities with the learners.

Activity 2:

The teacher-guided activity remains the same. If learners struggle, use the 5x4 grid as it provides learners who need additional support with a simpler option, making it easier for them to create and follow their coding sequences successfully.

		Place papers all over the mat or in the classroom/playground.	
	COMPETENCIES	TEACHER GUIDELINES for THEORY	
Success Criteria: I can:	➤ Pack out my group's code to collect the litter on the grid ➤ Test our code on the grid and say whether it works ➤ Find and fix any step that does not work ➤ Follow another group's code exactly as it is given ➤ Tell the group what worked and what I changed		



