Curriculum Title: Dino Buddy

Teaching Dinosaurs through Robotics & Programming

A Curricular Unit for Grades K3-K5

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In collaboration with Kids Media Lab

(based in the "Guide to Replicating a Kibo Robotics Study" from DevTech Research Group)

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INTRODUTION

The Kindergarten of Arcozelo das Maias is located in the town of the same name, being the number of inhabitants, superior to 2000. It belongs to the parish of Arcozelo das Maias, Oliveira de Frades and District of Viseu.

This curriculum was developed in 2018, with a heterogeneous group of 13 children

	3 Years	4 Years	5 Years
Boy	2	2	2
Girl	3	0	4
Total	**5**	**2**	**6**

Fundament

The children showed a great interest in the great prehistoric animals, so working on this theme will allow the understanding of the correlation between the animals with their environment at different times and of some natural phenomena and their effects. With this you will have the opportunity to know those animals that lived on our planet millions of years ago.

Using Robotics as a Learning Facilitator

Lesson	Biology Connection	Activity
Lesson1: *Sturdy building*	Charachteristcs of dinosaurs	See the movie about the "Birth of the Earth". This time provides information about the appearance, life and extinction of dinosaurs. Children follow the steps of the engineering design process and draws the dinosaur they liked best to build it with Lego.
Lesson2: *What is a robot?*	Reinforce characteristics of dinosaurs, compare and contrast groups of them	Remember the different types of dinosaurs according to the environment in which they move: air, earth or water. Discover the various types of robots they know and almost their functions. Children will participate in the execution of a simple robot that has some characteristics of the dinosaurs that they liked
Lesson3: *What is a program?*	How do dinosaurs move? What are the physical characteristics of them?	Through creative and collaborative writing build a story of dinosaurs with which children identify themselves. Using apps will reproduce the steps that the main character will make during the story. Dramatize part of the story by programming the robot with simple commands.
Lesson4: *What are repeats?*	Dinosaurs	Discovering more dinosaur characteristics and continuing the collaborative story.
Lesson5: *What are sensors?*	How did the dinosaurs sense their friends and enemies? What senses did they have? Compare human and animal senses.	Discovering together how the dinosaurs knew friends and enemies. Remember the organs of the senses and compared them to the result of the research. Program the robot according to pre-established criteria, to react differently depending on the dinosaurs it finds
Lesson6: *What are ifs?*	Animal relationship: the brave and the good one. Emotions: fear	The dinosaurs are reptilian and therefore are oviparous. The children participate in an egg hunt, whose purpose is to discover, through the reactions of our friend DinoKibo and the criteria previously defined, to whom the egg belongs.
Lesson7: *Final project*	Study visit to the natural museum of Lourinhã Dino park	The kids know about the open-air natural museum where they find dinosaurs reproducing in real size and where they can have various related activities, such as watching fossil cleaning in the laboratory, seeing time charts of the evolution of dinosaurs.

ROBOTICS CURRICULUM "BIG PICTURE" PLANNING SHEET

CURRICULUM THEME *What is the theme of your robotics unit?*

Animals - Dinossaurs

LEARNING GOALS *What specific learning goals/objectives do you have for this unit?*

Awaken observation, reasoning and curiosity in the child

- *Be interested in researching new subjects, consulting different sources of information.*
- *Expand knowledge*
- *Create an environment in which the child participates in the activities developed in it*
- *Bringing the child closer to nature*
- *Know the different species of dinosaurs*
- *Make the child aware of technologies (computer, tablet, robot) as a learning tool*
- *Start children in problem solving*

SUBJECTS/DISCIPLINES INTEGRATED *Does this unit integrate math, history, science, literacy, or other disciplines?*

- Personal and Social Training
- Knowledge of The World
- Motor Expression
- Artistic Expression
- Oral Language and Approach To Writing
- Mathematics

FINAL PROJECT *What will your class build and program for their culminating projects?*

- Go to natural dinosaur museu: Dino Parque of Lourinhã
- Use the activities for presentation at the end of the year party

CURRICULUM TIME FRAME *How many hours will the curriculum take to complete? How will these hours be distributed daily/weekly/monthly?*

The curriculum will have 20hrs distributed in 7 classes in an average of 3 hours each

GROUPING THE KIDS *how will the kids be broken into partners or groups?*

The activities will be done in a collaborative way. The children will function in groups of 2 and in a large group according to the proposed activity.

SPECIAL ARRANGEMENTS *Do any kids need special arrangements to complete the curriculum*

No

MATERIALS *What materials will your class need?*

- Robot building kit
- Images
- Videos
- Computer

ASSESSMENTS *What assessments will you be using & how do they re-late to the learning goals?*

- Photos
- Session videos
- PTD Engagement Checklist Environment
- PTD new Engagement Checklist new Children (one for each age)

LOGISTICS *Any other logistics that need to be planned for?*

The sessions were all done in the classroom or in the playground. The only exception was the visit to the natural museum which is about 240km and for which we rented a bus

Lesson 1

Sturdy Building Powerful Idea: The Engineering Design Process

What is the Engineering Design Process?

The Engineering Design Process is a process used by engineers to help them create new things. The Engineering Design Process consists of 6 steps: **ASK, IMAGINE, PLAN, CREATE, TEST & IMPROVE,** and **SHARE.**

Overview:

Time: 130 minutes

Students are interested in dinosaur theme, so they design and build dinosaurs. They use the *engineering design process* to explore how to make their dinosaurs.

Knowledge & Objectives

Students Will Understand That:

- The engineering design process is useful for planning and guiding the creation of artifacts.
- There are many different kinds of engineers
- The building blocks can snap together to form sturdy structures like dinosaurs
- The building blocks are useful for realizing the ideas resulting from engineering design process

Students Will Be Able To:

- Build sturdy, non-robotic structures
- Use the engineering design process to facilitate the creation of their structure
- Put ideas on paper and turn them into practical achievements with building blocks

Materials/ Resources Needed:

- Video: *Once Upon a Time ... The Man*- Ep 01 (9'18") - The Birth of the Earth (https://www.youtube.com/watch?v=s5rgBF4H6b4)
- Engineering Design Process poster
- Pictures of different dinosaurs
- LEGO® bricks for building

Activity description

Warm-Up Activity (15 minutes) See the movie about the "Birth of the Earth" until the minute 9'18 '. This time provides information about the appearance, life and extinction of dinosaurs.

Introducing the concepts and the tasking (30 minutes) In large group talk about the movie. Show different types of dinosaurs and divide them by aerial, terrestrial and marine. Make three columns on the floor and distribute images to the children, who will individually put the image according to the environment in which they move: air, earth or water.

"Next we'll build dinosaurs. How are we going to do it?" We share ideas and introduce the steps of the *engineering design process*

Individual work 1 (15 minutes) Students follow the steps of the engineering design process and draws the dinosaur they liked best to build it with Lego.

Individual work 2 (30 minutes) Students create with LEGO® bricks, the dinosaurs who planned.

The criteria for a successful dinosaur are that:
• to recognize that it is a dinosaur
• it must stay intact while being handled

Concluding Activity (10 minutes) After building the dinosaurs, students share their creations. They:

- explain what they did and what the characteristics of their dinosaur
- identify the dinosaurs with the images they saw at the beginning
- talk about what they found easy or difficult.

Free-play – (30 minutes) This are one more opportunity to explore and build with LEGO®

Vocabulary
- ***Design*** – a plan for a building or invention
- ***Engineer*** – someone who invents or improves things
- ***Dinosaur*** - diverse group of reptiles who lived between 243 and 231 million years ago
- ***Pterodactyl*** - extinct flying reptile
- ***Diplodocus*** - extinct genus of diplodocid sauropod dinosaurs
- ***Pliosaurus*** - extinct genus large carnivorous marine reptile

Assessments To Be Used:
- Photos and Video
- Designs
- PTD Engagement Checklist Environment
- PTD new Engagement Checklist new Children (one for each age)

Lesson 2
What Is A Robot? Powerful Idea: Robotics

Robots have special parts that let them follow instructions. Robots need moving parts, such as motors, to be able to perform behaviors specified by a program. The robotic 'brain' has the programmed instructions that make the robot perform its behaviors.

Overview:

Time: 165mns (90 + 75 minutes)

This session has two parts. During part 1, students explore how we can make a simple walking dinosaur machine. During part 2, build the various parts of the dinosaur and with the help of the teacher make a homemade robot.

Knowledge & Objectives

Students Will Understand That:

- Robots need special parts to be able to walk: wheels, motor, switch and wires.
- Some robots have "brains" or have plaques where they receive and process the orders given to them.
- The robotic 'brain' has the programmed instructions that make the robot perform its behaviors.

Students Will Be Able To:

- Describe the components of a robot, including the 'brain', motors, and wires.
- Acquire basic concepts of the programming language

Materials/ Resources Needed:

- Pictures of different robots
- Instructions of one simple robot they can understand (https://researchparent.com/simple-homemade-robot-car/)
- A firm block of foam 6″ x 3″ x 2″ piece
- 4 bottle lids for wheels
- 2 straws
- 2 skewers
- A rubberband
- 2 googly eyes
- a pipe cleaner for a mouth (optional)
- 2 AAA battery holder
- 2 AAA batteries
- 1.5-3 V DC Motor
- switch
- Insulated wire

Activity description

Session 1

Warm-Up Activity (10 minutes) Children will be shown about 6 different *images of robots.* Talk to children about the various types of robots and their social utility.

Introducing the concepts and the tasking (30 minutes)

In a large group, distribute several images of robots to the children. The first child shows his robot and says what kind of robot it is: everyone confirms or not, the image will be in the middle. The next child will do the same and if the robot does not belong to the same group as the previous one it will be next to it, creating a new class and so on. In the end, there will be several sets that will correspond to the different types searched:

- Space exploration robots: help the astronauts
- Medical and laboratory robots
- Industrial robots: repeat the same action
- Robot manipulators: help in dangerous places
- Submarine robots: help in seabed work
- Home robots: help with household chores
- Educational robots: help us teach and learn

"Now we are studying dinosaurs and it was good to have a dinosaur robot to help us. We did some Lego dinosaurs. Are they robots? Why?"
"How can we make a robot dinosaur? What do we need?"

Pairs work 1 (20 minutes) Students search the net, simple homemade robots. Students follow the steps of the engineering design process and choose from several images how the robot dinosaur might look.

Concluding Activity in small groups work 2 (30 minutes) Students build and paint the various parts of the dinosaur

Session 2

Big group (35 minutes) with the help of the teacher make a homemade robot

The criteria for a successful robot are that:
- it should have wheels that roll
- you should be able to push it between two locations in straight line
- it must stay intact while being handled and must remain intact during handling and movement on the ground

Concluding Activity (10 minutes) After building the dinosaur robot, students test it:

Free-play – (30 minutes) This is the opportunity to explore the construction itself and to understand what can be improved or modified

Vocabulary
- ***Motor*** **-** the part of a robot that makes it move
- ***Robot*** - a machine that can be programmed to do different things
- **Interrupter** - a device for interrupting electrical circuit
- **Battery** - cell that supplies electrical power

Assessments to Be Used:
- Photos and Video
- Designs
- PTD Engagement Checklist Environment
- PTD new Engagement Checklist new Children (one for each age)

Lesson 3

What is a Program? Powerful Idea: The Order of Instructions Matters

*A **Program** is a sequence of instructions that the robot acts out in order. Each instruction has a specific meaning, and the order of the instructions affects the robot's overall actions.*

Overview:

Time: 165mns (90 + 75 minutes)

Knowledge & Objectives

Students Will Understand That:

- A problem can be solved following an ordered sequence of steps
- A program is a sequence of instructions that is followed by a robot
- Each icon or "block" corresponds to a specific instruction

Students Will Be Able To:

- Create and understand a logic sequence
- Point out or select the appropriate block corresponding to a planned robot action
- Connect a series of blocks on the computer
- Transmit a program to a robot
- Start in the programming by tangible blocks in a natural and playful form
- Acquire basic concepts of the programming language

Materials Needed:

- Images to storytelling
- Images of fruits and trees
- Kibo robot
- Apps: NextApp, Scratchjr
- Internet connection
- Computer

Activity description

Session 1

Warm-Up Activity (15 minutes) Randomly display a sequence of 4 dinosaur pictures. Children should create a collaborative story with them.

Introducing the concepts and the tasking (30 minutes)

After creating the story, we will use the pictures and place them in the correct sequence of the story.

"See, when we put the images in order we can see what they mean!"

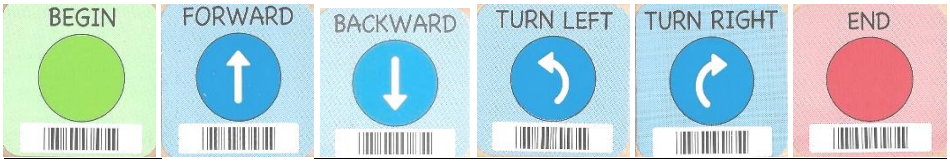
Encourage children to do other sequences and use the Activeboard or tablet to train simple steps whith apps.

In individual work 1 (15 minutes) Students draw the sequence of the story they created

Pairs work 2 (30 minutes) Introduce Scratchjr to create story steps

Session 2

Big group (35 minutes) Introduce Kibo and the blocks:



With the circle group use the history of session 1:

- distributing random images of leaves and fruits by children
- program the Kibo to go to the first child we choose, this in turn will have to choose which destination to follow and program the robot to go there

Concluding Activity (20 minutes) – Made a Dino mask to Kibo

Free-play – (20 minutes) This are one more opportunity to explore the first steps with Kibo

Vocabulary

- ***Order*** – parts of a group arranged to make sense
- ***Program*** – a set of instructions for a robot
- ***Sequence*** – the order of instructions that a robot will follow exactly
- ***Forward –*** in the direction that one is facing or travelling; towards the front.
- ***Backward –*** in the direction of one's back.
- ***Turn right –*** to change the direction to the right side
- ***Turn left -*** to change the direction to the left side

Assessments to Be Used:

- Photos and Video
- Designs
- PTD Engagement Checklist Environment
- PTD new Engagement Checklist new Children (one for each age)

Lesson 4

What are repeats? Powerful Idea: **Loops & Number Parameters**

An instruction or sequence of instructions may be modified to repeat a particular number of times (or forever) using Repeats, End Repeats, and Number Parameters.

Overview:

Students will learn about a new instruction that makes the robot repeat other instructions infinitely or a given number of times. They use these new instructions to program their robots to move between two destinations on opposite ends of "road" with a turn in it

Time: 135mns (80 + 55 minutes)

Knowledge & Objectives

Students Will Understand That:

- An instruction or sequence of instructions may be modified to repeat.
- Some programming instructions, like 'Repeat,' can be qualified with additional information.

Students Will Be Able To:

- Recognize a situation that requires a looped program.
- Make a program that loops.
- Use number parameters to modify the number of times a loop runs

Materials Needed:

- Dinosaur song: https://www.youtube.com/watch?v=IBwZ6BVdFRc
- Internet connection
- Two dice: Color + number
- Kibo robot

Activity description

Session 1

Warm-Up Activity (30 minutes) Listen and learn the dinosaur dance (https://youtu.be/IBwZ6BVdFRc)

Introducing the concepts and the tasking (35 minutes)

Introduce the "Repeat…" and "End Repeat" blocks. What does it mean to repeat something? Emphasize that the robot only repeats the instructions in between the "Repeat…" and "End Repeat" blocks. Demonstrate what they are for. Introduce the repeat numbers and forever repeat

"Our Dino would also like to know how to dance. for him not to be sad, let us help him?"
In a large group try to do the choreography of the dance. Introduce *Shake* and *Spin*

Big group (15 minutes) Explore the choreography made, correct the mistakes

Session 2

Circle time (40 minutes): *"Our Dino likes to walk, but he needs help. He'll leave and we'll roll the dice to know where he has to go"*

Present a mathematical game with the following rules:

- Roll the dice and according to the result, program the robot to go to the corresponding "dinosaur"
- As we do not have repeat indicator with the number 5, "Dinosaur" #5 will program the choreography of session1
- As we do not have repeat indicator with the number 6, "Dinosaur" #6 will change who is next.

Concluding Activity (15 minutes) Present a dinosaur spy to find out who Dino found on the way

Vocabulary
- ***Loop* –** Something that repeats over and over again
- ***Pattern* –** a design or sequence that repeats
- ***Repeat* –** to do something more than once
- ***Spin* –** turn or whirl round quickly.
- **Shake -** tremble or vibrate.

Assessments to Be Used:
- Photos and Video
- Designs
- PTD Engagement Checklist Environment
- PTD new Engagement Checklist new Children (one for each age)

Lesson 5
What are sensors? Powerful Idea: Sensors and Loops

A robot can feel and see its surroundings with a sensor. A robot can react to information it collects by charging its behaviour

Overview:

Students will learn about new blocks that makes the robot feel its surrounding.

Time: 185mns (105 + 80 minutes)

Knowledge & Objectives
Students Will Understand That:
- A robot can feel and see its surrounding with a sensor
- A robot can react to collected data by charging its behavior
- Certain instructions (like "Repeat") can be modified with sensor data

Students Will Be Able To:
- To use a sensor appropriately with their robots
- Compare and contrast human sense and robot sensors

Materials Needed:
- Dinosaurs Book, Paul wills, Sheena Coupe editor
- Kibo robot

Activity description

Session 1

Warm-Up Activity (45 minutes) Explore the book "Dinosaurs" of Paul Wills, from Sheena Coupe editor and review the learning done. Look at the dinosaur sense organs and compare them with our own.

Children go to the playground to play "blind goat". Children, blindfolded and using the senses, have to find their colleagues and find out who they are.

Introducing the concepts and the tasking (35 minutes)
Back in the room, put the question: *And our Dino Buddy, how does he discover friends and enemies? He's a robot. Does it have senses?*

Show sensors and programming blocks. Show that the indicators associated with the sensors have a continuous line that is the same as the repeat block, ie they have to be used with the repeat block.

Explain that the Clap indicator has no row because it is a block, but that it is also a sensor.

Teach what ***input*** and ***output*** commands are, to better distinguish the sensors. (*The lamp orders are input, so it is not a sensor*)

<u>*Small groups*</u> (25 minutes)- Children experiment, question, manipulate

<u>Session 2</u>

<u>*Circle time*</u> (25 minutes) Continuing to build the collaborative story, the children decided that although it is a T-rex, our friend Dino was fearful because he was a little dinosaur.

"Our Dino Buddy was walking in the forest. He was always careful not to have bad encounters. For every different dinosaur he encountered, so his reaction was different as well". Children set the criteria

- found a Diplodocus - *Hear palms and shakes*
- found a Triceratops - *Repeat walking forward until you are near a dinosaur and walk back 3 x*
- found a Stegosaurus -- *Repeat walking forward until it is dark and lights up the blue, red and white lights*
- found a Velociraptor- *Repeat walking forward until day and sings*
- *found Brachiosaurus - Repeats walking backwards to be far away and takes two spins*

<u>*Big group*</u> (25 minutes) Several letters are placed with the 5 chosen dinosaurs, in the center of the circle, with the image downwards.
The children randomly draw a letter and program the Dino Buddy following the established criteria for the image found

<u>*Free-play*</u> *– (30 minutes) This are one more opportunity to explore all they learn until now in the first steps with Kibo*

Vocabulary
- ***Sensor* –** any device that receives a signal or stimulus and responds to it is a distinctive way

Assessments to Be Used:
- Photos and Video
- Designs
- PTD Engagement Checklist Environment
- PTD new Engagement Checklist new Children (one for each age)

Lesson 6
What are Ifs? Powerful Idea: **Sensors and Branches**

A robot can "choose" between two sequences of instructions depending on the state of a sensor by using ifs (and ifs nots)

Overview:

Time: 120mns (55 + 65 minutes)

Knowledge & Objectives
Students Will Understand That:
• A robot can "choose" between two sequences of instructions depending on the state of a sensor

Students Will Be Able To:
• Know how to read and deconstruct an algorithm
• Programming without help by reading a given algorithm
• Identify a situation that needs a branched program
• Make a program that uses a branch

Materials Needed:
• Chocolate eggs
• Kibo robot

Activity description

Session 1

Note: the concern when integrating the if was to know if the children knew how to read the blocks correctly.

Warm-Up Activity (20 minutes): Review what has been learned so far and start with the robot dinosaur rhyme

Introducing the concepts and the tasking (15 minutes)

Display the *if* and *end of if* blocks. Show the associated indicators and focus on these indicators have a discontinuous line that distinguishes them from the repeat dials. Also note that the reading is not "*until being*" but that refers to moment "*if it is ...*"

Pairs work 1 (20 minutes) - Children make several experiments until they appropriate and habituate the correct language for the use of if.

Session 2

Big group (30 minutes) – Dino will hunt eggs. The eggs are in the playground and the kids will help him to find them. Each egg has an algorithm that matches the criteria chosen in session 6.

Circle time (35 minutes) - After find the eggs, go into the classroom and each one at a time, read his algorithm and program Kibo. Depending on the reactions scheduled, they should tell the dinosaur what the egg belongs to.

Vocabulary

- ***If – used for introducing a situation that may happens***

Assessments to Be Used:

- Photos and Video
- Designs
- PTD Engagement Checklist Environment
- PTD new Engagement Checklist new Children (one for each age)

Lesson 7
Culminating project

Overview:

Time: 300mns (240 + 60 minutes)

Knowledge & Objectives

Students Will Understand That:

- We learned many things about dinosaurs through the use of robotics.
- Kibo is an educational robot and teaches to think

Students Will Be Able To:

- Do a choreography with the steps they've learned
- Present the work to the community, at the end of the year party

Activity description

Session 1

Big group: (240mns)

Children did a study visit to the natural museum of the Lourinhã Dinosaur Park. It was a very busy day. They saw dinosaur replicas of relative size, they reviewed contents and thought together how they would finish this curriculum.

The kids love dinosaur music and had already planned to perform the dance at the school party. So why not join the Dino and program it to accompany the choreography?

We did not take him on this visit because the weather was uncertain and we did not want him to get wet. The children chose and trained the choreography, getting the idea of what they could do with Dino Buddy.

Session 2

Pairs work 1 (20 minutes) - Children test themselves and present several ideas, transformed into algorithms, to perform the dance with the Dino Buddy.

Circle time (30mns) - Choreography is chosen by majority and rehearsed. For there to be no distractions in the presentation and because the algorithm is not large, we chose to present the Kibo in the final part as the apotheosis of the presented work

Public Presentation (10mns) - Public presentation takes place at the end of the year party and was the opening theme

Materials Needed:

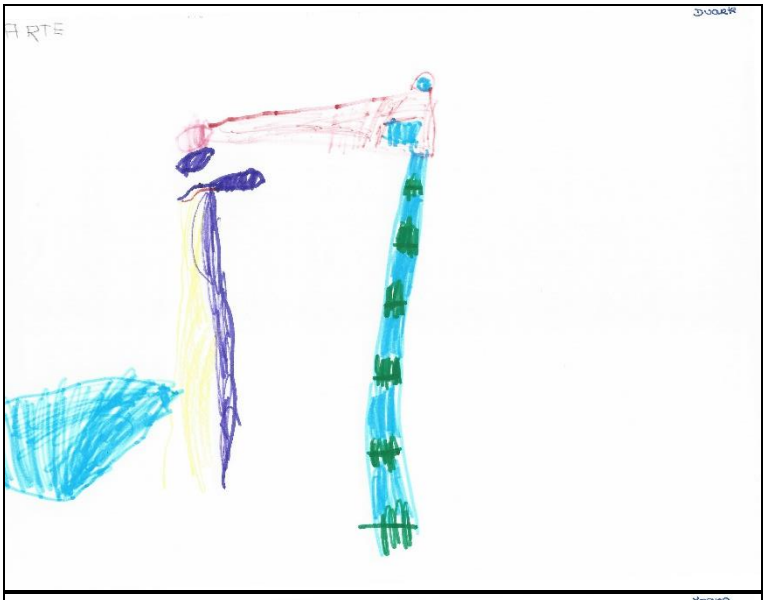
- Rented bus
- Tickets to the museum

- Dinosaur song: https://www.youtube.com/watch?v=0GIgk4yuHOQ
- Costumes
- Kibo robot
- Computer

Assessments to Be Used:

- Photos and Video
- Designs
- PTD new Engagement Checklist new Children (one for each age)

APPENDIX LESSON 1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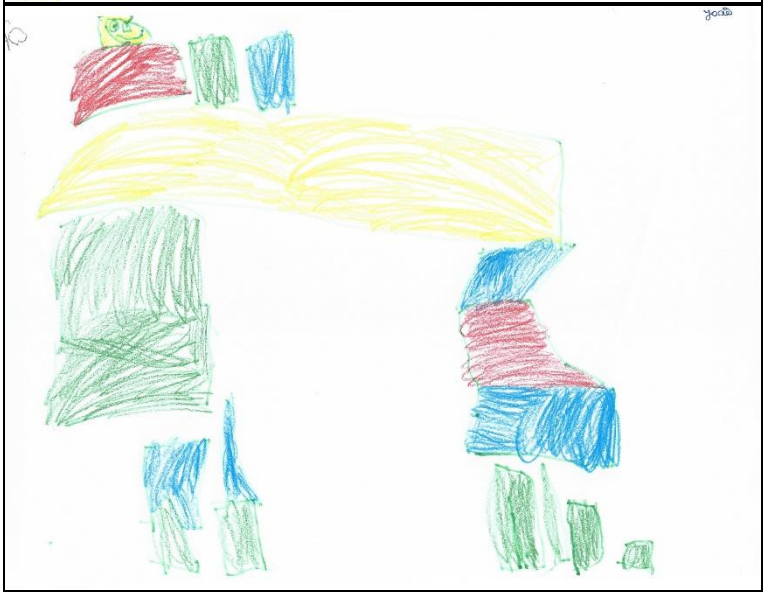
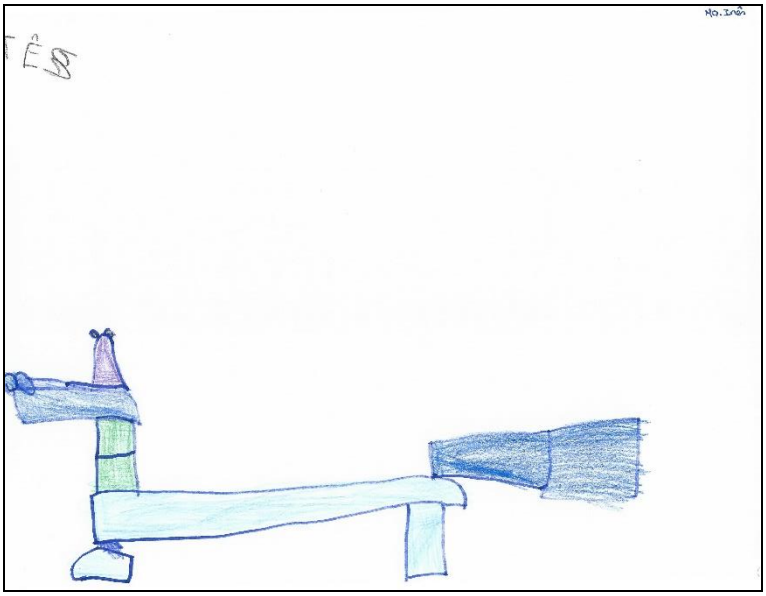
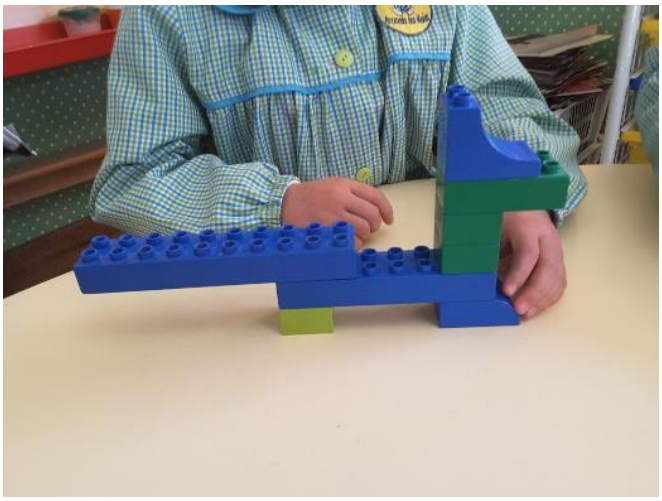
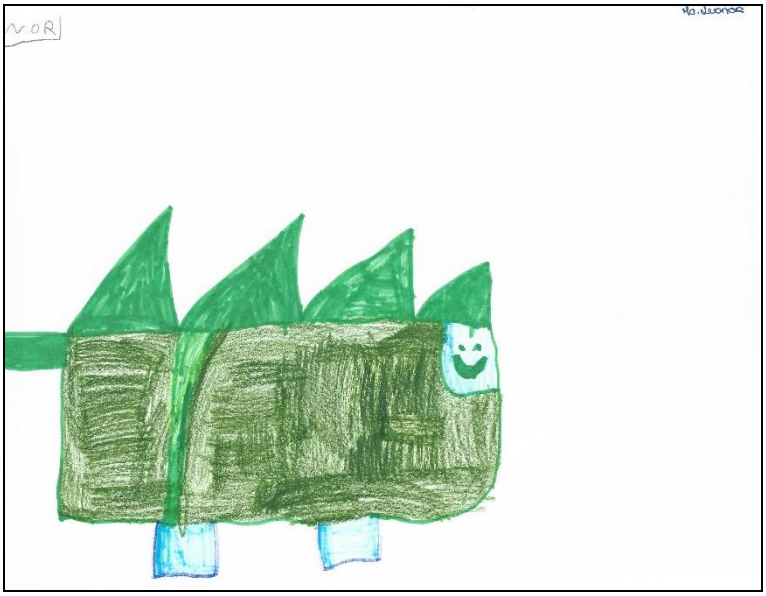
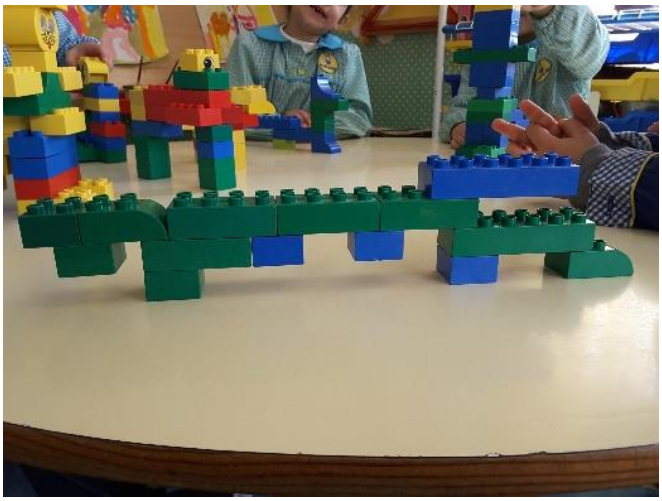
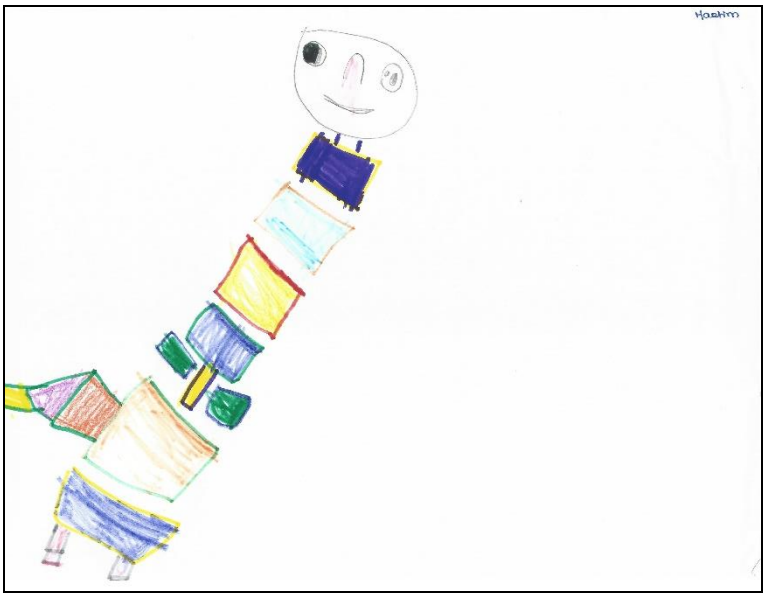


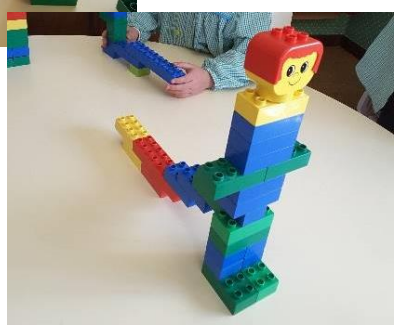


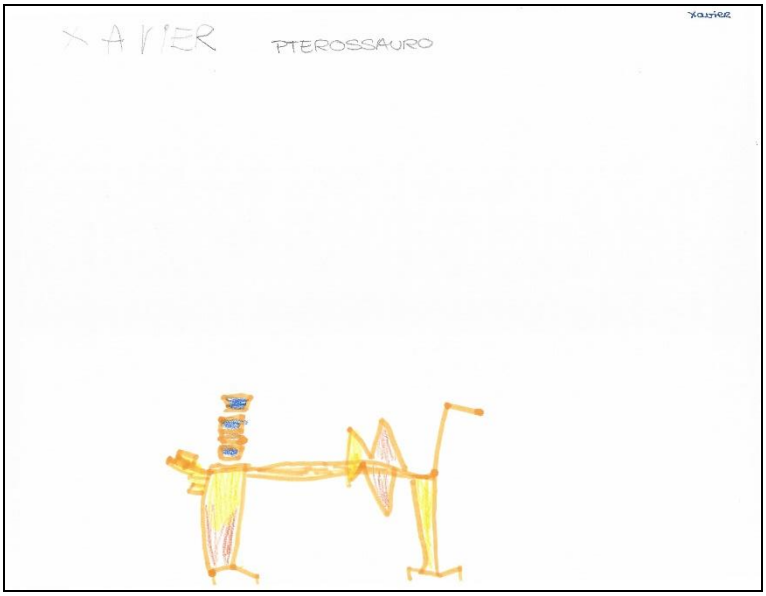


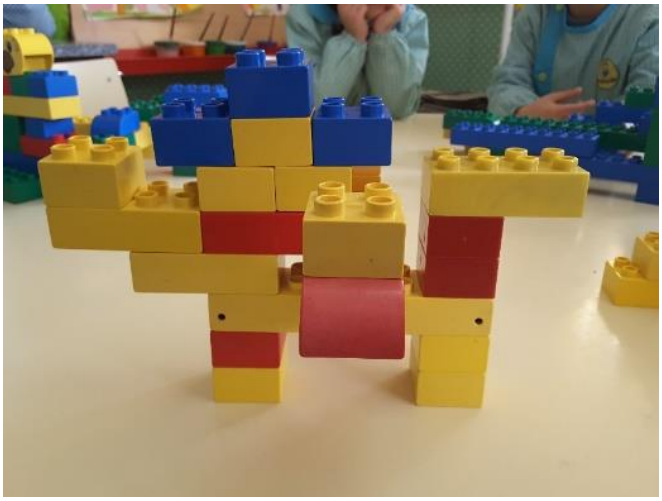


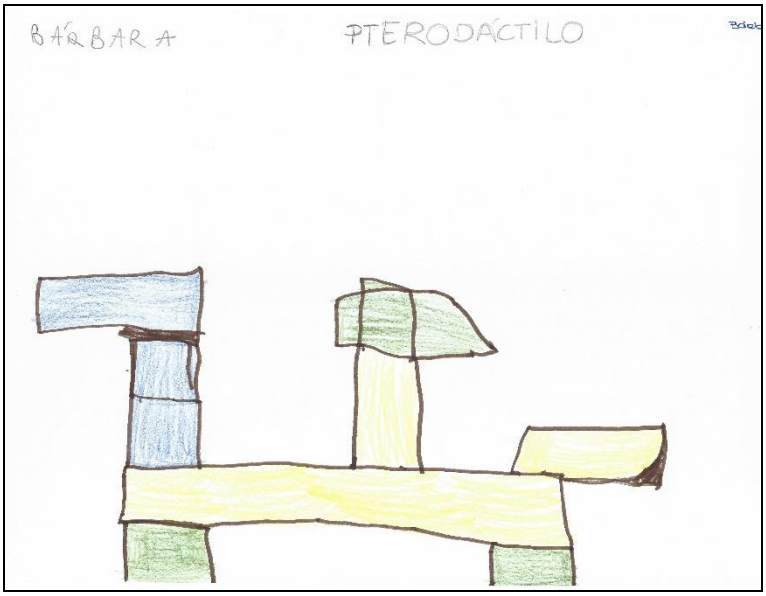







XAVIER
PTEROSSAURO

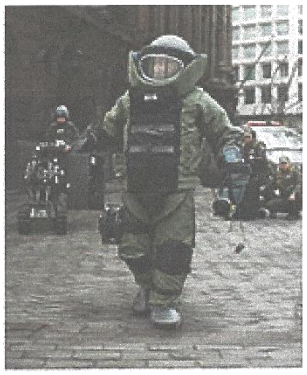



BÁRBARA
PTERODÁCTILO

APPENDIX LESSON 2

ROBOTS MANIPULADORES

AJUDAM EM LUGARES PERIGOSOS

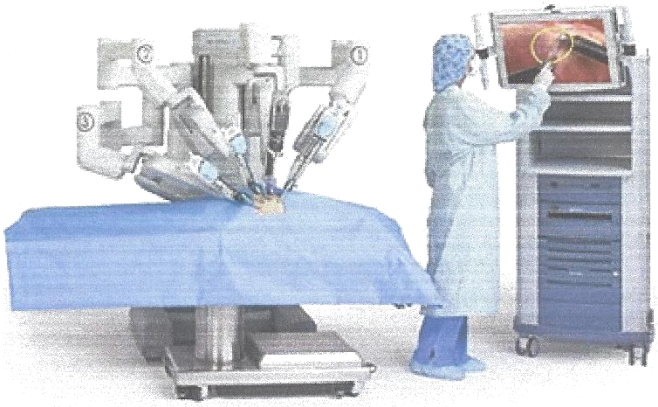


ROBOTS INDUSTRIAIS

REPETEM A MESMA AÇÃO

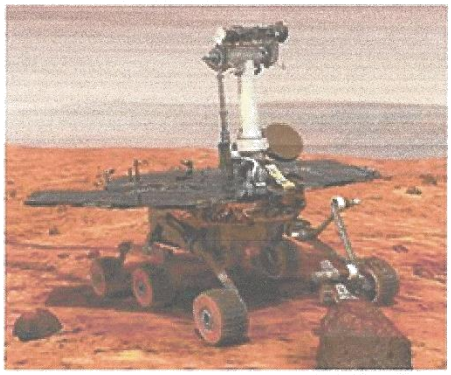
ENROSCAM, PINTAM, DESENROSCAM...

ROBOTS MÉDICOS E DE LABORATÓRIO



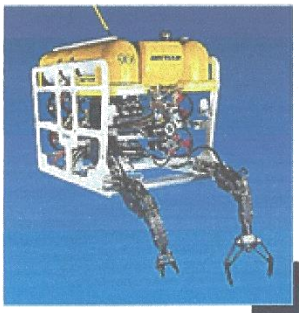
ROBOTS EXPLORADORES ESPACIAIS

AJUDAM OS ASTRONAUTAS



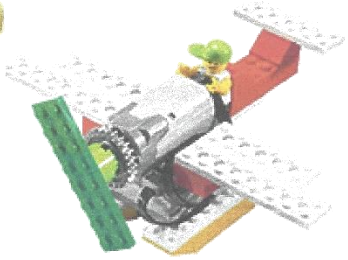
ROBOTS SUBMARINOS

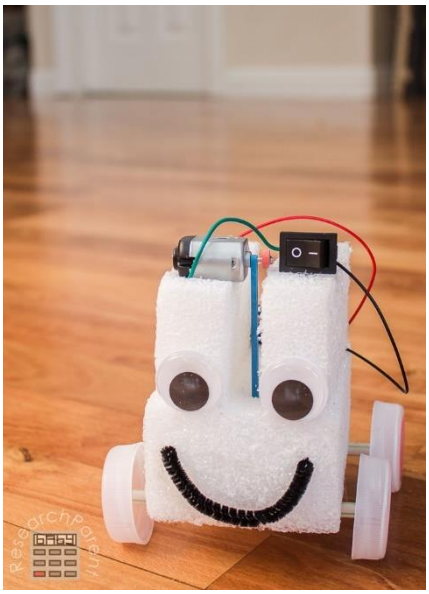
AJUDAM EM TRABALHOS NO FUNDO DO MAR



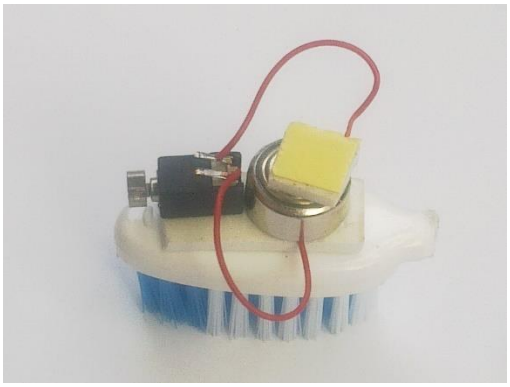
ROBOTS EDUCATIVOS

AJUDAM-NOS A ENSINAR E APRENDER

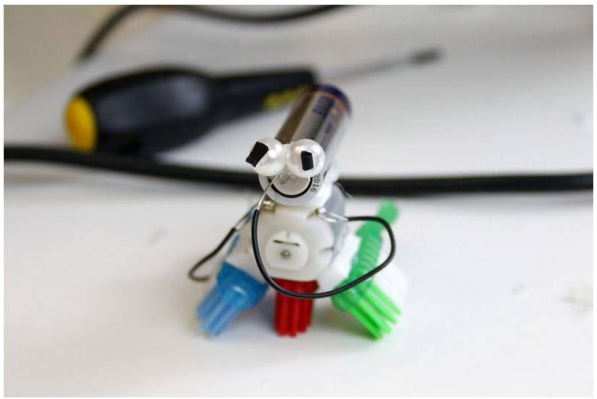




Fonte: https://researchparent.com/simple-homemade-robot-car/



Fonte: https://www.youtube.com/watch?v=fvFo5O2Nq8k

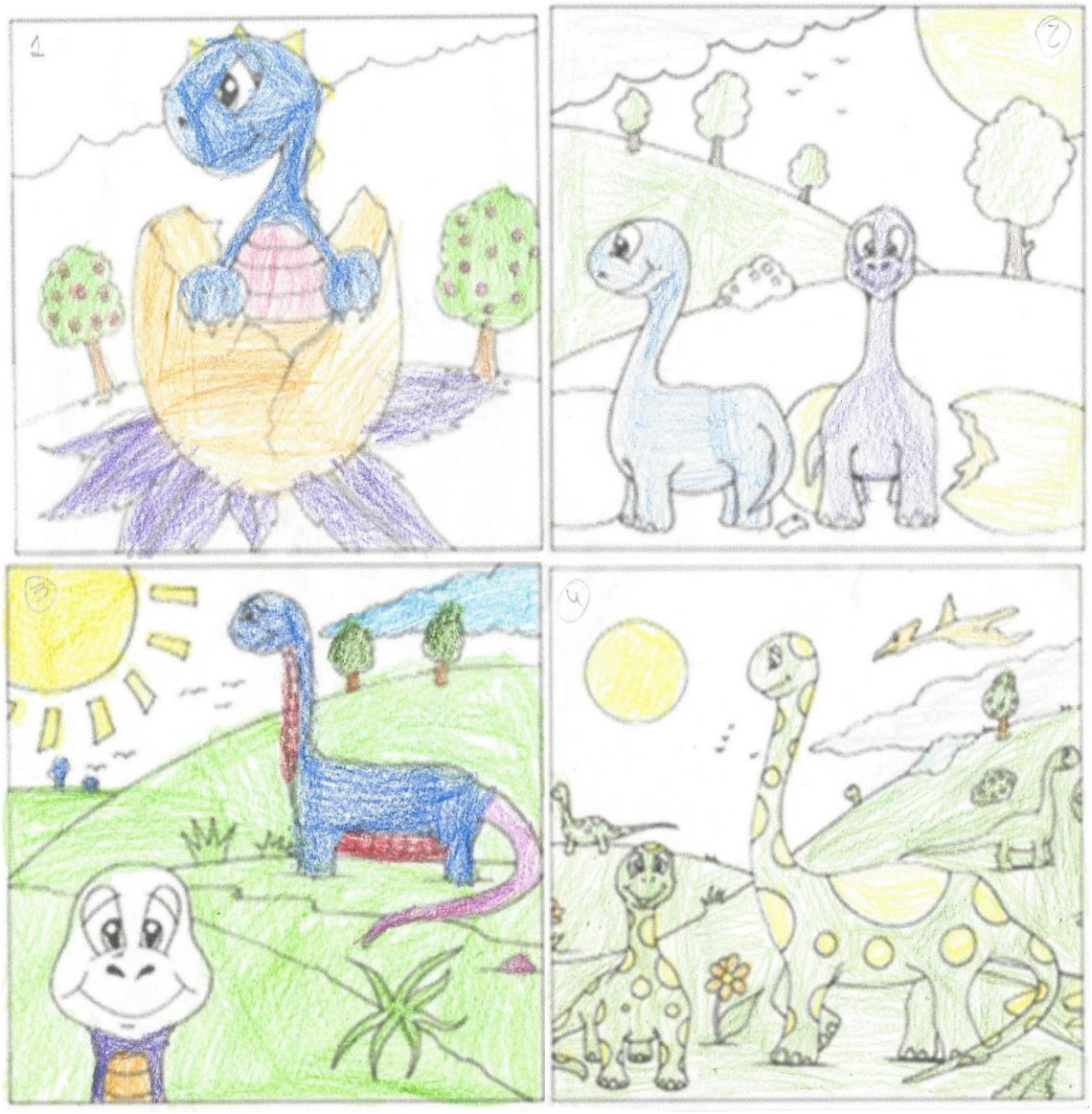


Fonte: https://www.hellowonderful.co/post/12-brilliant-diy-engineering-project-for-kids/


UHU


SEVENTH
SIX

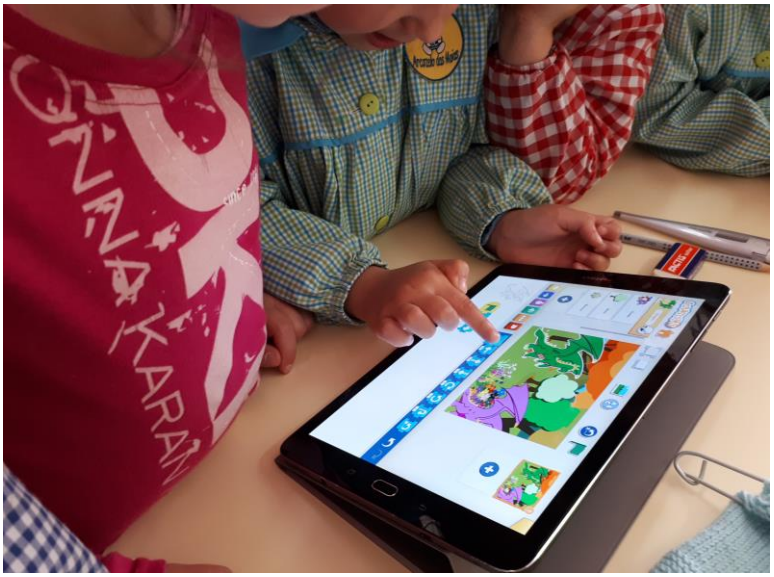
APPENDIX LESSON 3

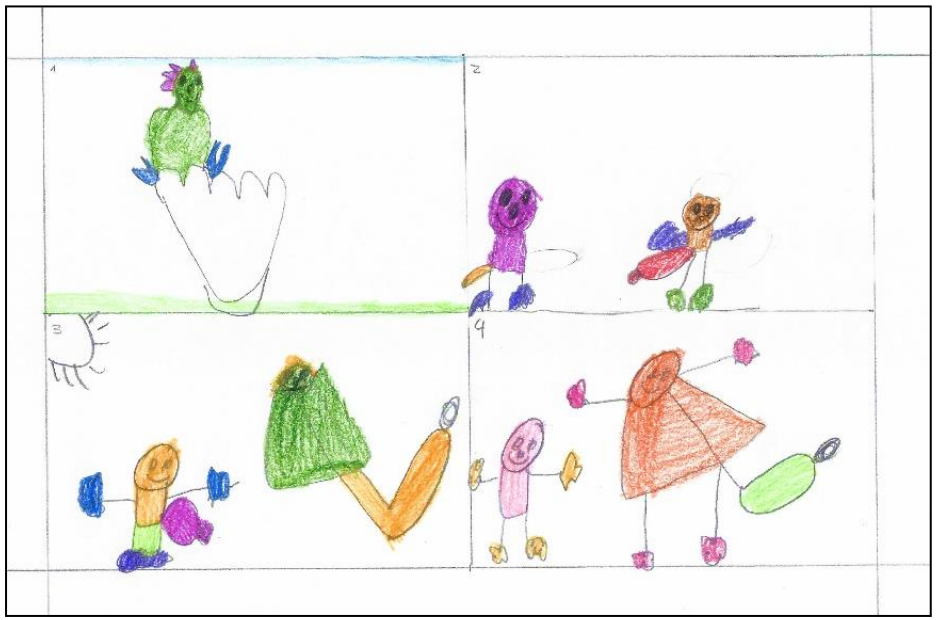


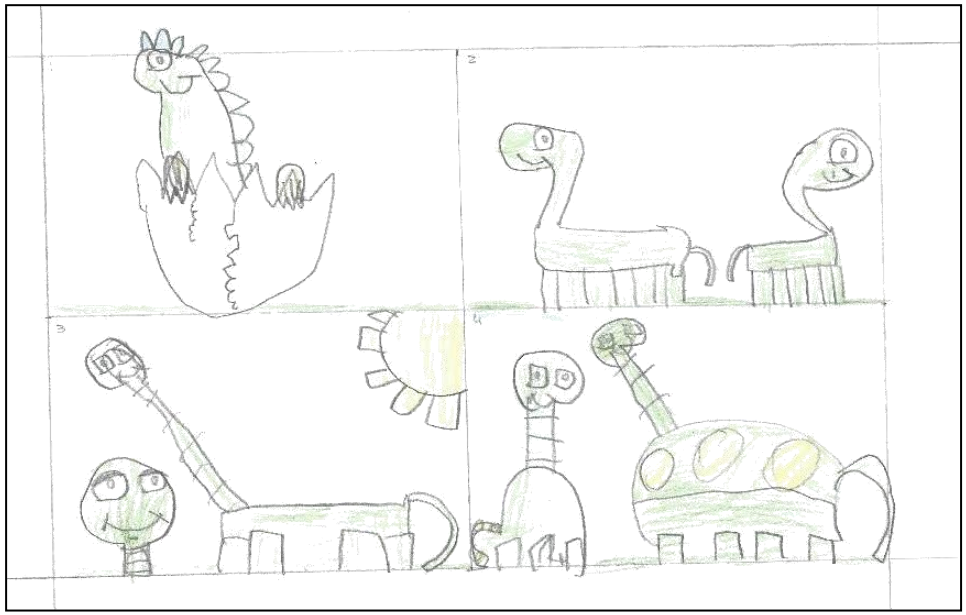
Dino Buddy

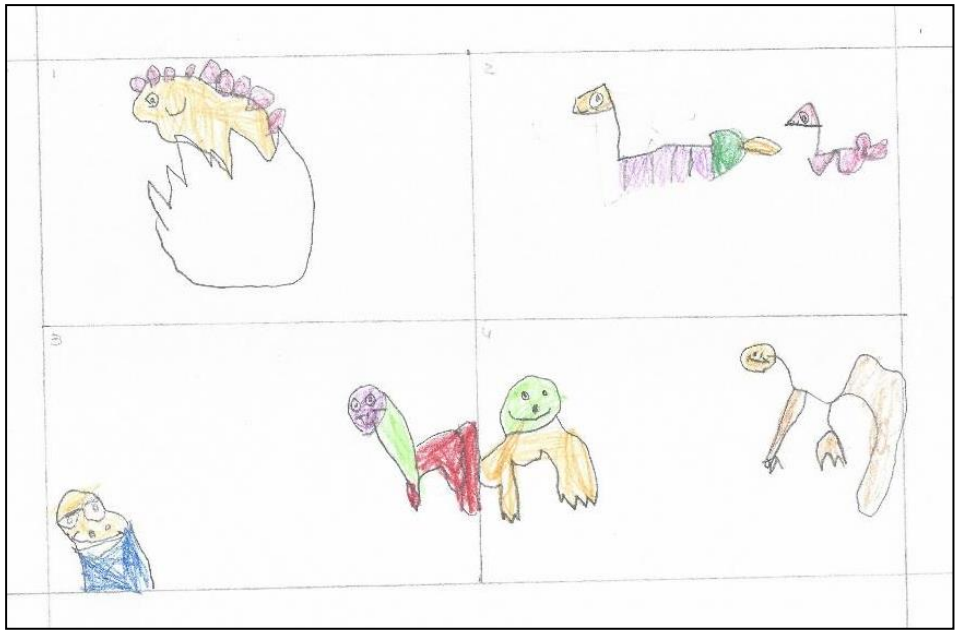
- Era uma vez um dinossauro que tinha eclodido. Estava sózinho e andava à procura da mãe (Joana)
- O dinossauro bebé olhou para o lado
- E descobriu mais um dinossauro que era seu irmão, ou melhor, sua irmã, porque era uma dinossaura. Como tinham fome foram à procura de comida (Xavier)
- Eram herbívoros por isso foram à procura de erva, frutos e folhas (João)
- No caminho encontraram a mãe e foram atrás dela à procura de comida (Duarte)
- Como não sabiam do pai, ficaram muito contentes quando o encontraram.
- E, depois de comer as melhores frutas voltaram para casa onde viveram felizes para sempre.

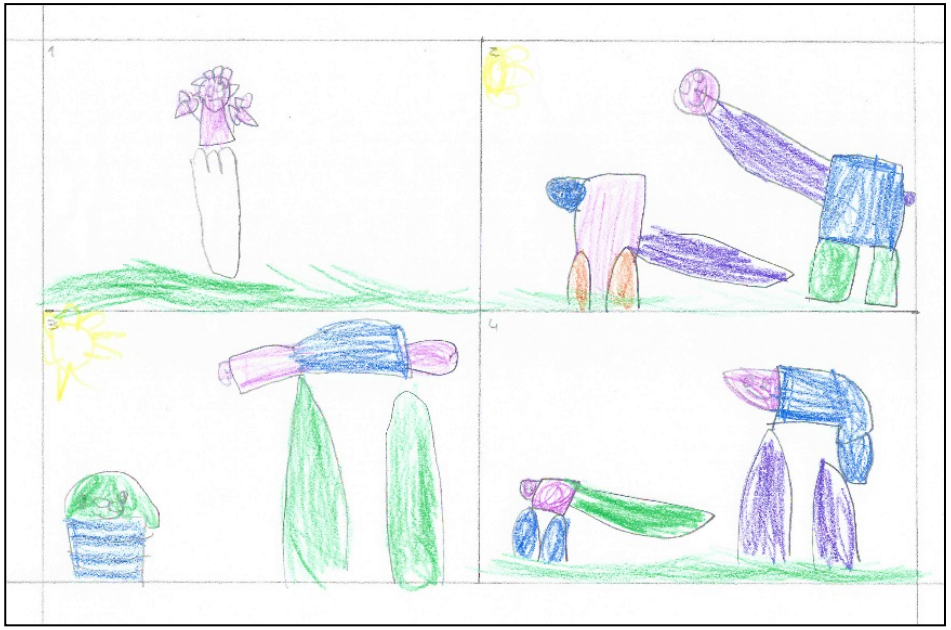
- There was once a dinosaur that had hatched. He was alone and he was looking for his mother (Joana)
- The baby dinosaur looked sideways
- And discovered yet another dinosaur who was his brother, or rather his sister, because it was a dinosaur. As they were hungry they were looking for food (Xavier)
- They were herbivores so they went looking for grass, fruits and leaves (John)
- On the way they found their mother and went after her in search of food (Duarte)
- Because they did not know about their father, they were very happy when they found him.

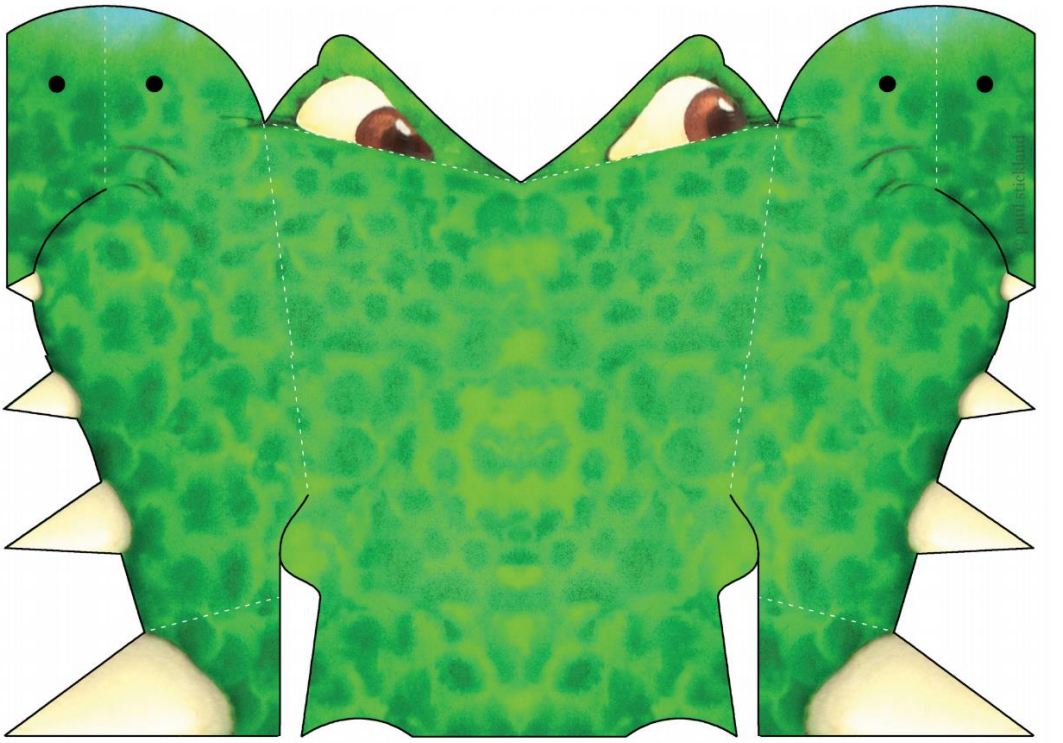




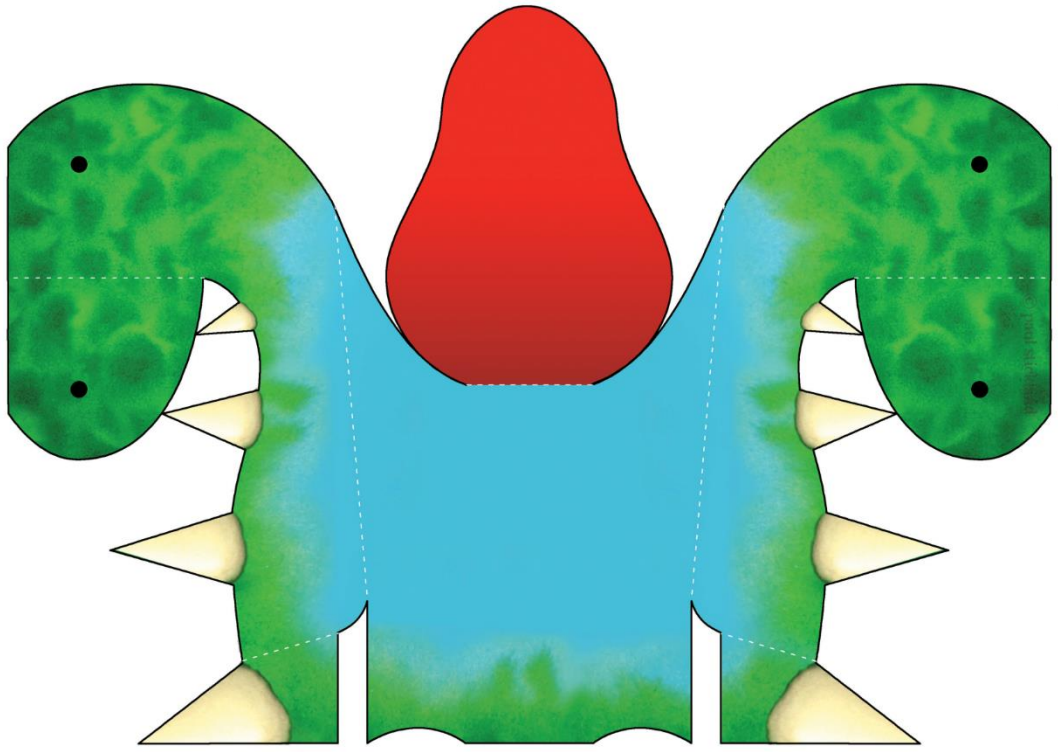




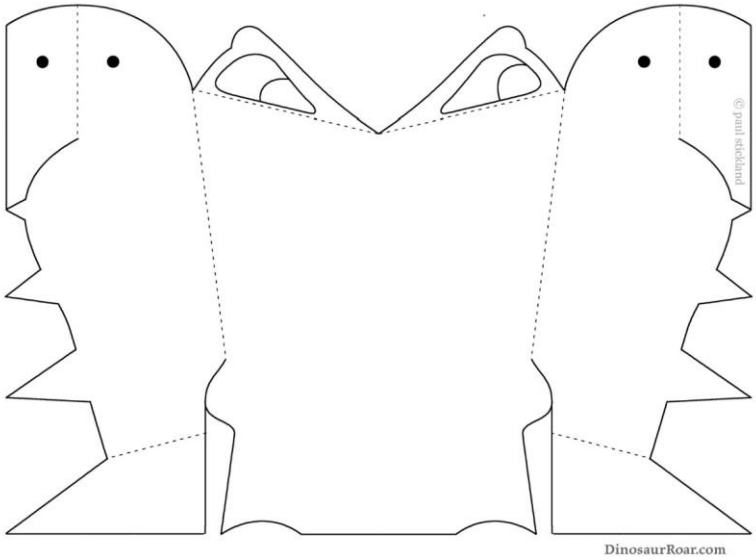




DinosaurRoar.com



DinosaurRoar.com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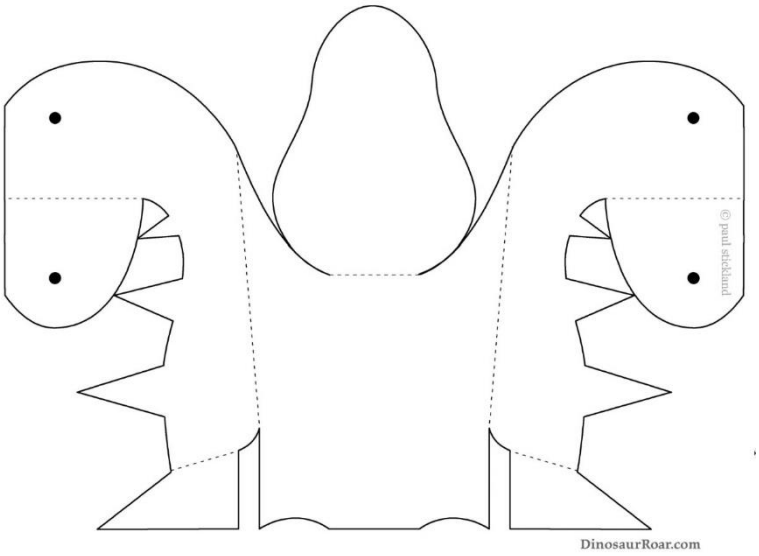
DinosaurRoar.com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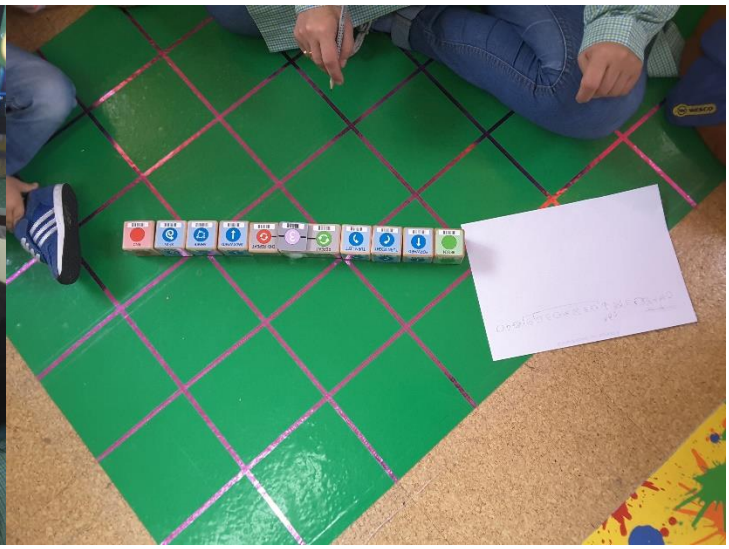
APPENDIX LESSON 4

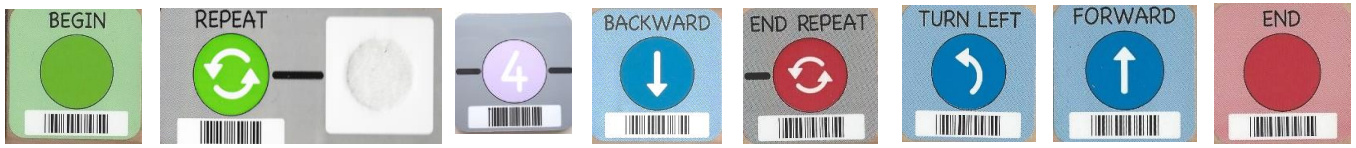


CHOREOGRAPHIES to "*Dinosaur dance*"

(https://www.youtube.com/watch?v=IBwZ6BVdFRc)

Autor: Bárbara (5 anos)

Autor: Xavier (4 anos)

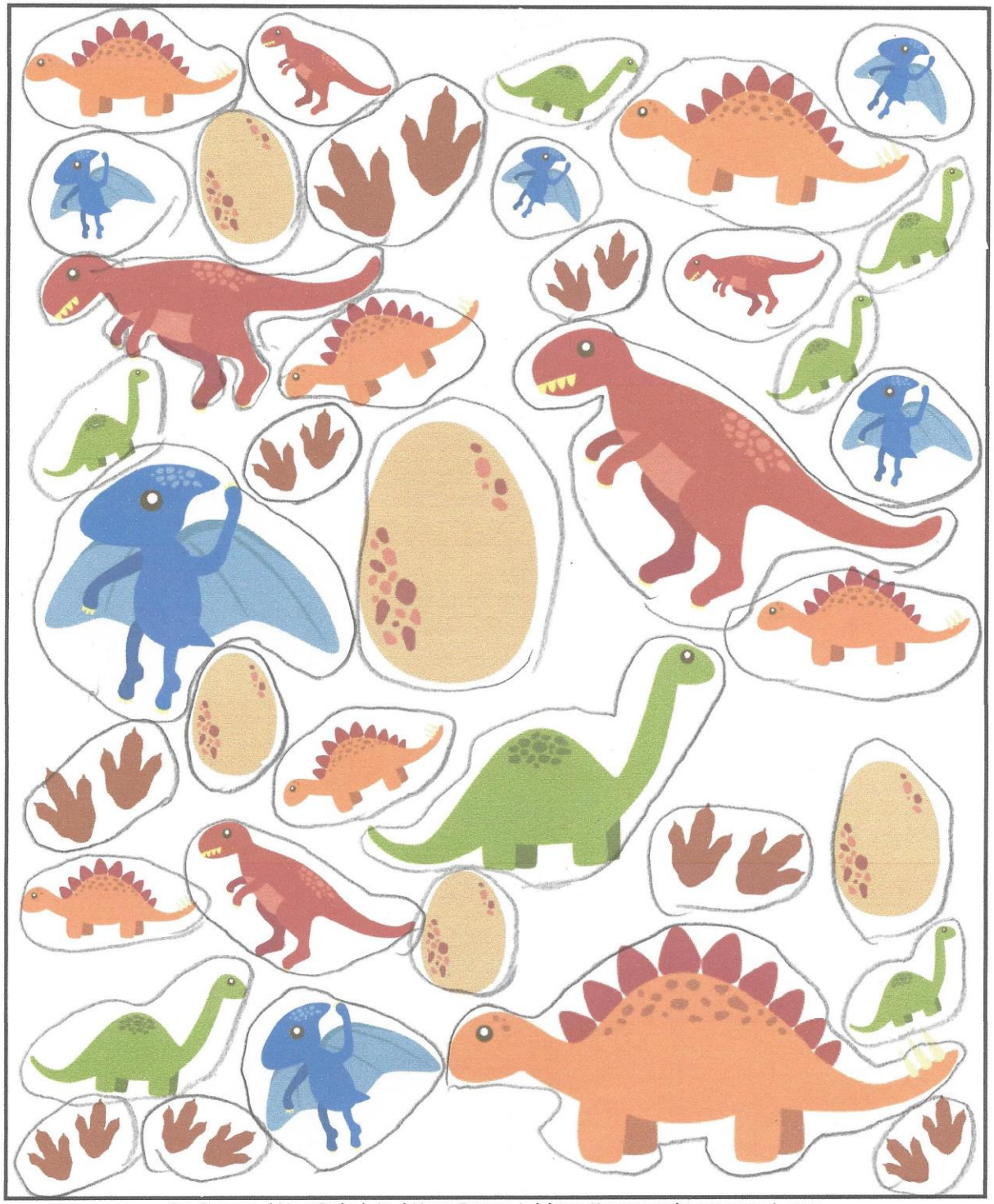


Autor: João (4 anos)

Final choreography, done with the participation of the 4 and 5 years, after investigation by trial-error

BÁRBARA

I SPY: DINOSAURS



BÁRBARA

I SPY: DINOSAURS

Write down the number of each item that you found.

5 Tyrannosaurus Rex 

7 Stegosaurus 

5 Dinosaur Egg 

8 Dinosaur Footprints 

7 Brontosaurus 

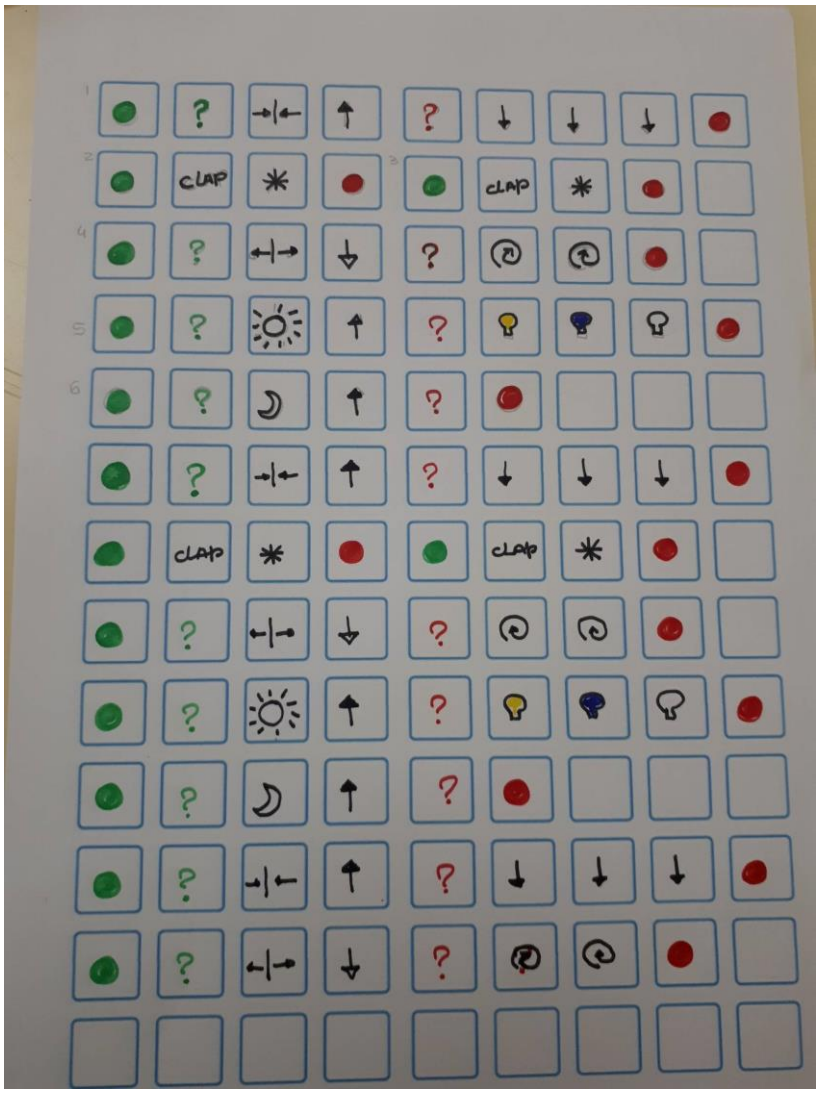
6 Pterodactyl 

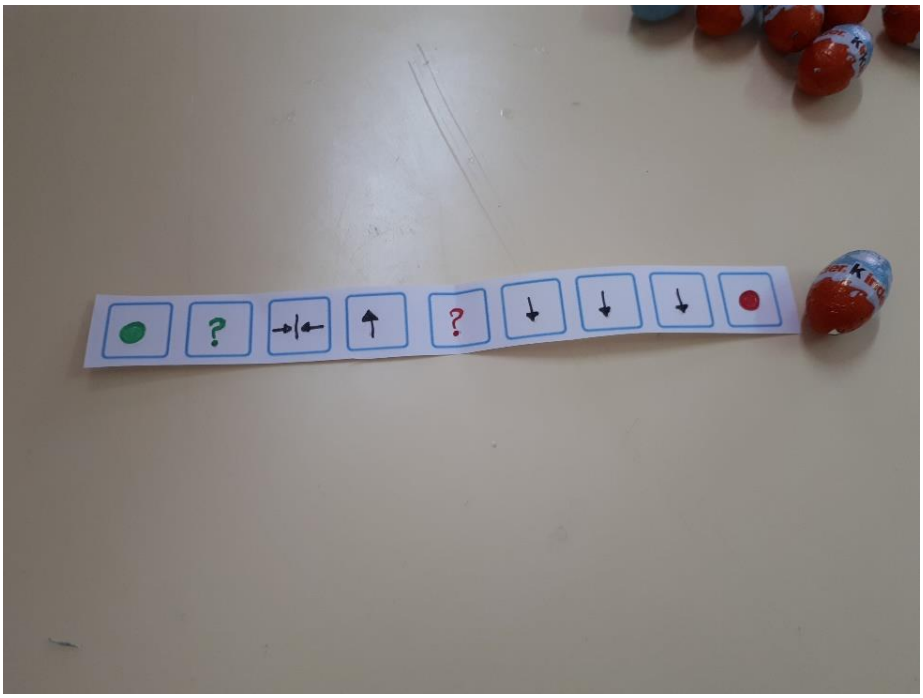
APPENDIX LESSON 5


BEGIN
WAIT FOR CLAP
SHAKE
END


BEGIN
REPEAT
UNTIL FAR
SPIN
END REPEAT
END

APPENDIX LESSON 6

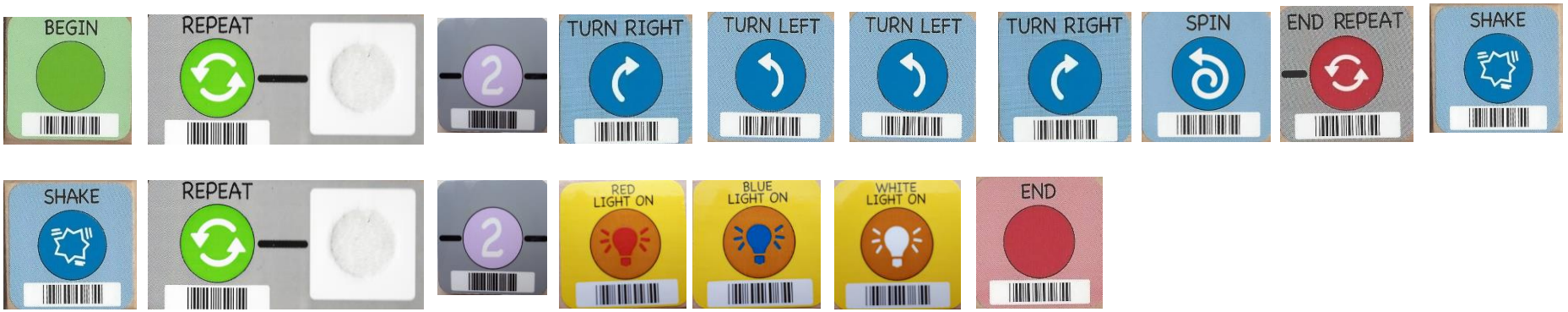

CLAP
CLAP
CLAP
CLAP

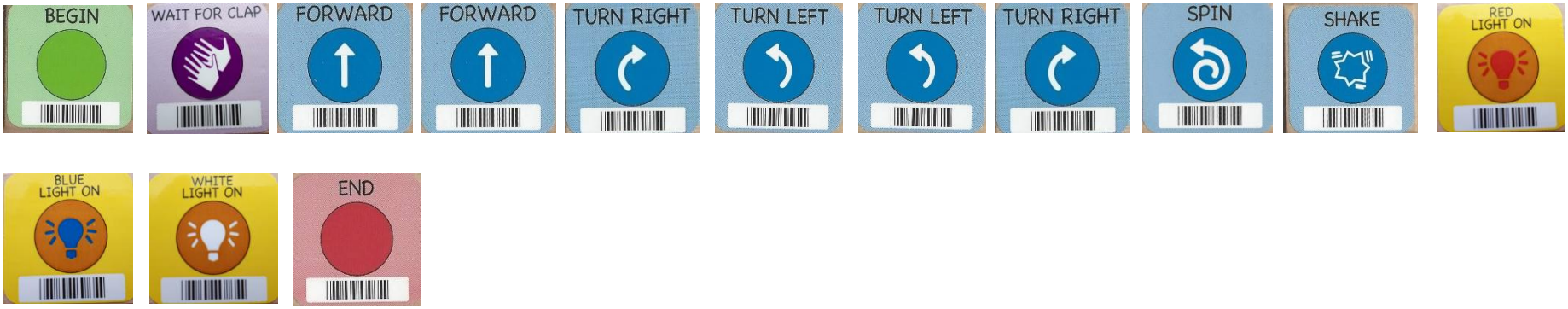


APPENDIX LESSON 7

FINAL PROJECT CHOREOGRAPHIES to "*Dinosaur song*"

(https://www.youtube.com/watch?v=0GIgk4yuHOQ) 2' 16" until 2'29"





ASSESSMENTS

Positive Technological Development (PTD) Engagement Checklist: Environment & Facilitator

Positive Technological Development (PTD) Engagement Checklist: Children/Child