



# TanglIn

**Tangible Programming & Inclusion**

## TanglIn Toolbox Recycling

6-10 years old

Natural Resources

3R's Policy

Screen and Classification

Probotic



[www.tangin.eu](http://www.tangin.eu)



/tanginproject



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## Summary

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Different types of waste - plastic, metal, glass and organic – and the need to reduce, reuse and recycle them for the planet's sustainability.

Expected duration: **60 min** (the lesson plan duration is flexible, and teachers can adapt them accordingly to their needs and class duration).

## Learning Outcomes

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At the end of the session, students are expected to:

- Realize that there are limited resources on planet Earth, and we must use them wisely;
- Understand the importance of 3R's policy – Reducing, Reusing, Recycling;
- Identify the main types of waste – plastic, metal, glass and organic;
- Screen and classify the waste;
- Identify the color of the bins to where which kind of waste goes;
- Program the robot adequately;
- Value STEM areas;
- Develop transversal competencies such as problem-solving, communication and reasoning;
- Develop group work skills, namely, to respect and favor the inclusion of all elements, regardless of gender, culture, etc.

## Links With Curriculum Topics

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Covered Curriculum Topics	
Subject	Topics
<b>Engineering</b>	<b>Mathematics</b> Algebra <ul style="list-style-type: none"> <li>• Trial and classification</li> </ul> Geometry <ul style="list-style-type: none"> <li>• Location and orientation – itineraries</li> </ul>
	<b>Science</b> Living in society <ul style="list-style-type: none"> <li>• Recycling</li> </ul> Natural resources
	<b>Technology</b> Programming <ul style="list-style-type: none"> <li>• Concepts of programming</li> <li>• Programs – Results, errors, and troubleshooting</li> </ul> Robotics <ul style="list-style-type: none"> <li>• Programming objects to solve challenges</li> </ul>



## Notes for Teachers

The teacher should prepare, in advance, all the materials needed and the classroom according to the activities to be developed.

The teams should be as heterogeneous as possible to foster the integration of all students.

It's important that clear rules are established in terms of group work. This way, it avoids the most active children assuming the lead and the quitter ones only observing.

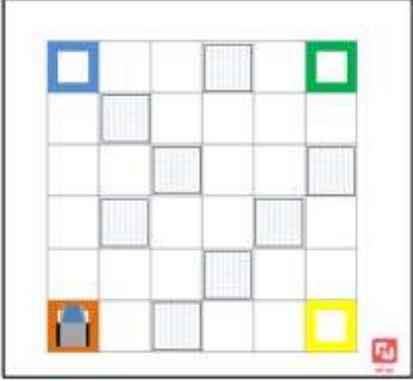
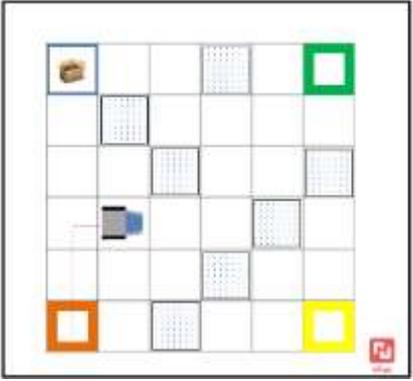
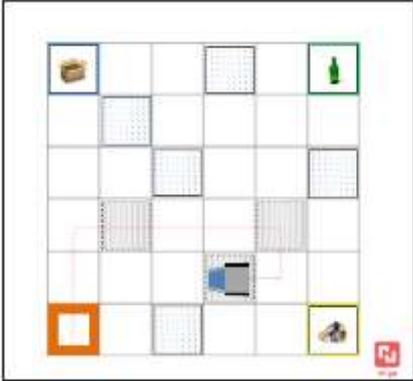
The teacher must circulate through the various groups to support the activities and the dynamics of each one.

If it is not possible to have 2 teachers in the classroom to control the answers, the students themselves will be able to evaluate. In this case, they need a grid where they register the object and its container.

In the end, it should promote a collective discussion of the main issues focused and the constraints and difficulties experienced.

## Lesson Plan

				
Intro	20'	Class	<p>"Today's mission is to teach MI-GO how to correctly sort waste."</p> <p>Discuss with the pupils that there are limited resources on planet Earth, and we must use them wisely.</p> <p>Introduce and discuss:</p> <ul style="list-style-type: none"> <li>the policy of the 3 R – Reducing, Reusing and Recycling;</li> <li>the main types of waste – plastic, metal, glass, and organic and</li> <li>on which bin each type of waste should be put regarding the color.</li> </ul>	

				
Prep	10'	Group	<p>Divide the class into groups and each group into two teams.</p> <p>Ask them to put the 4 colored squares on each corner. Each color represents one type of waste.</p> <p>Distribute the cards with the waste images facing down randomly over the scenario.</p> <p>Note: The cards should be placed under the plastic scenario to avoid being dragged by the robot. If it is difficult to turn the cards, alternatively, you can write random numbers in the squares and distribute a list that matches each number to a card.</p> <p>Place the robot on a corner.</p>	
Play	10'	Group	<p>The first team programs the robot to go to one card (number). When they get there, they flip the card over (or see which card matches the number) and put it in the correct bin.</p> <p>Then, the other team program the robot to go to another card (number) and must identify the type of waste and put it in the correct bin.</p> <p>The game goes on until the last card is placed in the bin.</p>	
Play and discussion	20'	Group	<p>After the students are familiarized with the dynamics of the challenge it evolves to a game.</p> <p>Instead of each team programming the robot to grab only 1 card, they must program it to catch as many cards as possible. Each team plays in turns.</p> <p>If a team doesn't put the waste in the correct bin, they must put it back in the scenario.</p> <p>The team that puts the most waste (cards) in the bins wins.</p>	



				
			<p>Finally, a synthesis of the main issues regarding recycling must be collectively done.</p> <p>And it must be incentivized a recycling attitude at home, in school.</p>	

## Resources List & Support Material

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### Per each group:

- A robot Kit with drawing capabilities;
- Cards with pictures of waste (or numbers and a corresponding list of cards);
- Scissors (to cut the cards);
- Transparent scenario with a 6x6 grid.



