



# TanglIn

**Tangible Programming & Inclusion**

## TanglIn Toolbox

### Geometrical figures

6-8 years old

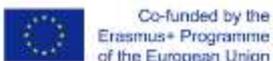
Mathematics

Geometry



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

 /tanginproject



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## Summary

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Use of the robot to learn programming steps in drawing geometrical figures from given sample and making of own algorithms.

Expected duration: **50 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:

- Better recognize geometrical figures;
- Give an idea of the possibilities of obtaining new figures from the given ones;
- 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>	Geometry <ul style="list-style-type: none"> <li>• Shapes</li> <li>• Angles</li> </ul> Algorithms
	<b>Sciences</b>	Natural Sciences, Arts, ... <ul style="list-style-type: none"> <li>• Symmetries in the real world</li> </ul>
	<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

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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.

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## Lesson Plan

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Intro	10'	Class	<p>Toady MI-GO is going to master the possibility of drawing geometrical figures and will go on a little trip with fairy tale heroes you all know. But he needs help to go through fairy tale hero road and to recognise the draw figures.</p> <p>Introduce class with cards of fairy tale heroes and show the geometrical figures which can be made by going into journey.</p> <p>Introduce class with number cards and explain that each number which will be put near the grid will be the deciding one on which figure should be divided in new figures.</p>	



								
Prep.	5'	Group (4-5)	<p>Divide class into 4 groups.</p> <p>Each group gets a grid under which cards with fairy tale heroes will be placed. On the side of each hero will be the number to know how to use correct heroes description in drawing figures.</p> <p>Ask groups to choose and take 2 colour markers: one colour to draw the figures and a second colour to divide the figure into new figures.</p> <p>Ask every group member one of four descriptions.</p>	 <table border="1" data-bbox="1018 779 1246 846"> <tr> <td>1.</td> <td>2.</td> <td>3.</td> <td>4.</td> </tr> </table>	1.	2.	3.	4.
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Play	25'	Group	<p>Every group has 4 fairy tale heroes stories, and the students will decide in which order they will read and draw.</p> <p>Students need to look at which number on the side of the grid keeping in mind which figure after drawing should be divided in new ones.</p> <p>They start reading the story of the first hero, make the steps algorithm and programme the robot.</p> <p>When finishing, they will pick the following stories, drawing a total of four figures and name them.</p> <p>At this point, each of the four groups will choose one of the stories/figures and decide how to divide the given figure to get at least 2 other new figures using the robot to draw.</p>					
Sharing	10'	Class	<p>At the end, all groups are sharing their experience in what kind of figures they figured out to divide the first figure.</p>					





## Resources List & Support Material

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### Per each group:

- A robot Kit with drawing capabilities;
- Transparent scenario with a 6x6 grid.
- 8 colour markers (2 for every group)
- 4x4 fairy tale hero story cards
- Images for story
- Number cards





Welcome! My name is Cinderella. Once I went to a miraculous castle. In the castle I met the prince and we danced at the castle. It was so beautiful! When the clock struck twelve, I rushed to my chariot because I knew I had to be able to return home. Upon entering the carriage, I returned. Can you tell me what my path was in your quest? What form did it take? Say it! Have you read a fairy tale about me? Read on to find out what else happened in this tale.



Welcome! My name is Winnie the Pooh. Once I went to visit my friend piglet. We played nice and then decided to go to Tiger Rouge. The tiger suggested that we come back to me together. We had a fun journey. Can you see the shape of the path we went? Have you read a fairy tale about me? Read on to find out what else happened in this tale.

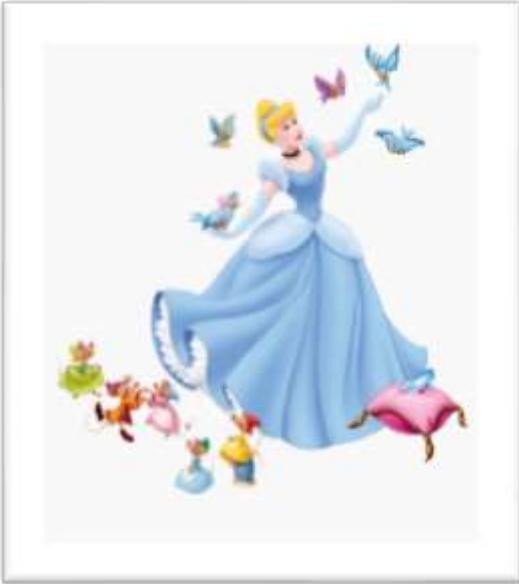


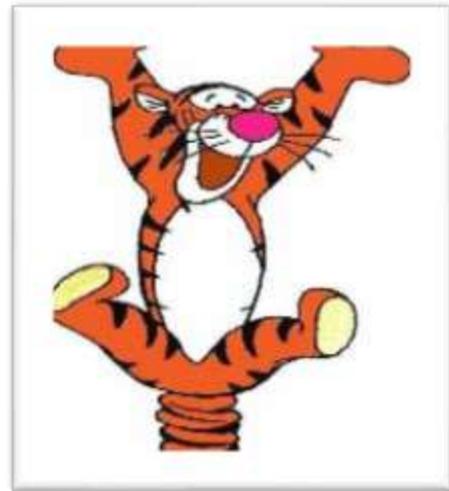
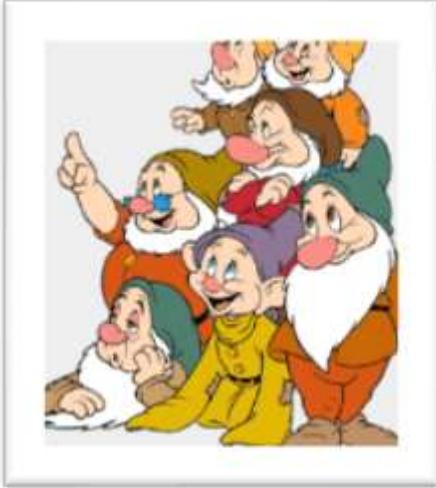
Welcome! My name is Redhead. Once I went to visit my grandmother. The road winds through the woods. I met a wolf in the woods. When I went to my grandmother's house, there was a wolf in her bed, dressed as grandmother. It wasn't nice! How happy I was when I was able to return to my house. Can you see the shape of the path I went? Have you read a fairy tale about me? Read on to find out what else happened in this tale.

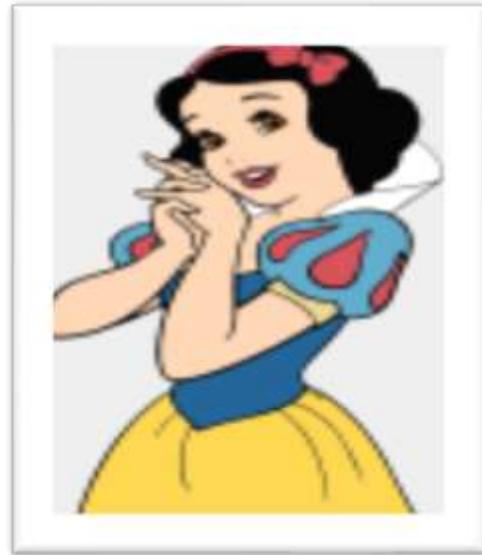


Welcome! My name is Snow White. One day I decided to please my friends. I picked up a basket and went for oranges to make a delicious, delicious juice. I leave it to the seven elves. The elves rushed to me to drink, "Thank you!" Can you see the shape of the path I went through until I did all the work? Have you read a fairy tale about me? Read on to find out what else happened in this tale.









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