

➤ **The children get to know the App ScratchJr in a playful way by letting a butterfly fly over the screen using its various functions.**

In the project "ScratchJr - Make the Butterfly Fly" the children work with a tablet and the app *ScratchJr*. The children work in pairs and make a butterfly fly with the help of the different coloured blocks.

*ScratchJr* is a great way to introduce children to the basic concepts of coding through play. They can develop their own little games and plays and they can implement their own ideas. With *ScratchJr*, active, creative and exploratory learning and independent problem-solving will be encouraged.

## ➤ Preparation

Prepare the children for the project "ScratchJr - Make the Butterfly Fly" and discuss with them what you plan to do.

Try out the tablet and app yourself before the children start using them and see if everything works out well. "Programme" the project yourself using the instructions. Familiarise yourself with the workflow so that you can explain it to the children and answer their questions.

To help the children better understand what their task is, you can show them the finished result. You can also show them a few other examples to help them understand what the app can do. You can find the examples in the app by clicking on the big question mark  at the top of the screen.

Show the app to the children and let them try out a few functions themselves: *How can I change the background? How can I add a new character or object? How can I delete a character? What do the different blocks do? etc.*

## ➤ Project Implementation

Divide the children into pairs and give one tablet to each pair. How many children can actually be involved in the "ScratchJr - Make the Butterfly Fly" project depends on how many tablets are available in your ECEC centre. If there are not enough tablets available, it is a good idea to repeat the project on more days. This way, every child in the group can let the butterfly fly once.

Now the pairs start "programming" to let a butterfly fly. To do so, open the *ScratchJr* app and start a new project.

Then the children follow the instructions step-by-step. Make sure that the children can realise the project on their own using the pictures. Only in case of questions and problems you should offer support.

**Age:** 5-6 years

**Group size:** 2 children per tablet

**Level of difficulty:** ● ● ○ ○ ○

**Time and effort:** ● ● ● ○ ○

### Materials:

For implementation:

- Tablet
- App *ScratchJr*

For follow-up:

- Tablet
- App *ScratchJr*

### Area of Education:

- Literacy and Communication
- Maths and Natural Sciences
- Media education

### Media pedagogical goals:

- Media grasp, understand and see through
- Playful introduction to the basic concepts of coding - Learn how a computer "thinks" (Computational Thinking)
- Use media creatively
- Dealing with media technology



## We Make a Butterfly Fly

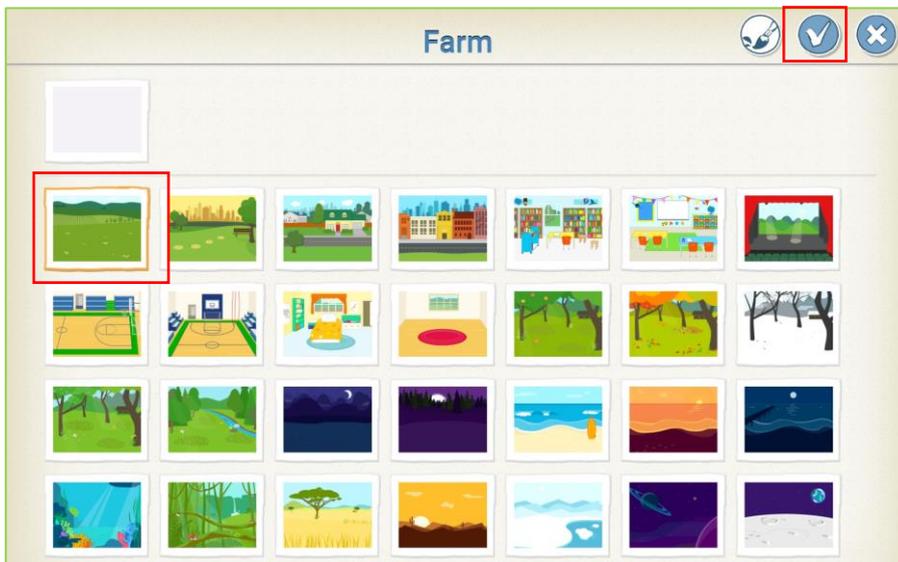
1. First choose a new background.



## Learn more:

- *Module 9 – Coding*
- <http://www.scratchjr.org/>

2. Select the background "Farm" and confirm with the checkmark.



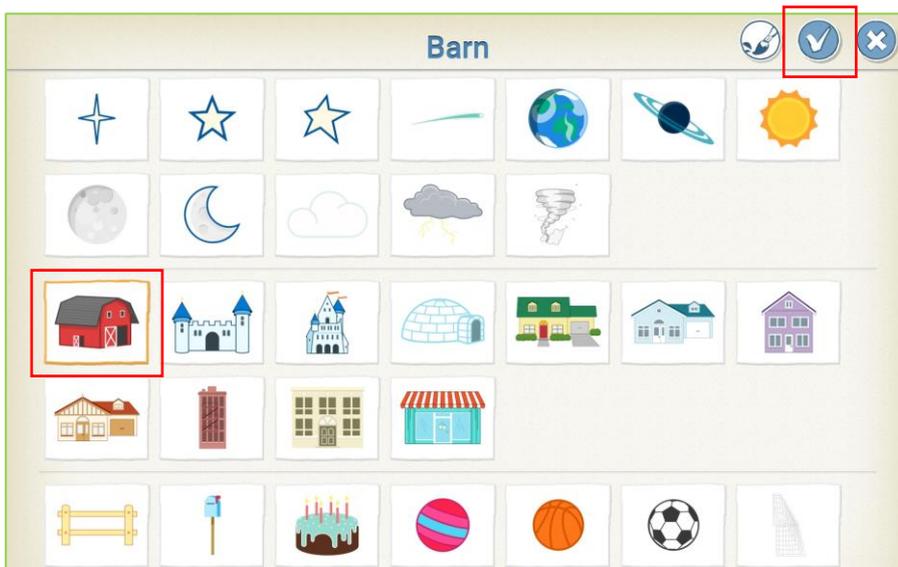
# 10

## ScratchJr – Make the Butterfly Fly

- Now delete the preset character, the cat. It is not needed. Tap on the cat figure on the left until it starts to wobble and a red circle with a cross appears. You can now click on it and the cat is deleted.



- Now add another object to the landscape, a house. To do this, click on the plus symbol on the left. Then select the corresponding object and confirm with the blue checkmark.



# 10

## ScratchJr – Make the Butterfly Fly

5. With the inserted object it now looks like this. The house at the beginning is always positioned in the middle and this one is too big.



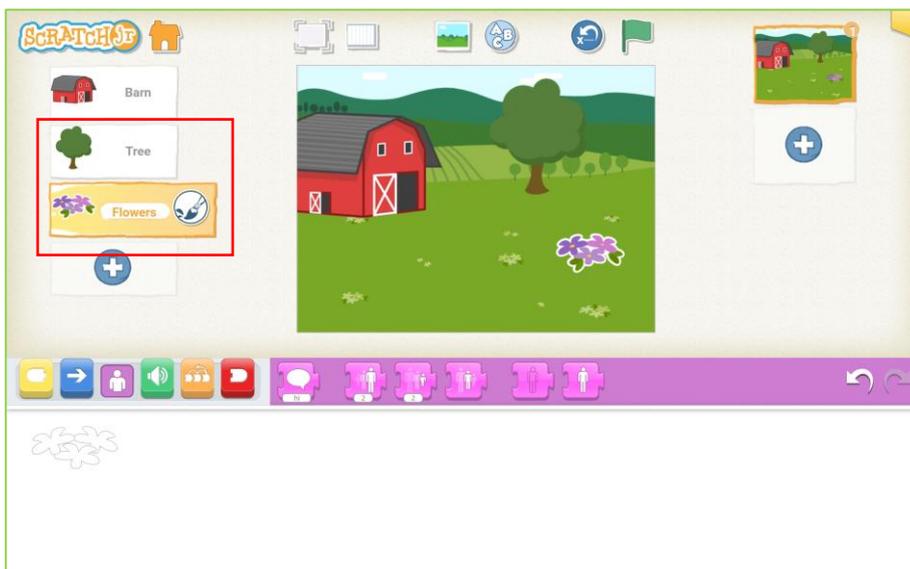
6. You can easily touch the object with your finger and move it to the preferred position. This will look like this:



7. Because the house is still too large in relation to the landscape, you can make it a little smaller. Click on the purple *Looks Blocks* and select the appropriate block to make it smaller. Drag it with your finger in front of the corresponding object, the house, at the lower part of the editing area. The preset reduction size "2" can be kept. If you click on the block, the house will be reduced in size on the screen and will keep this size for the whole time.



8. You can now use the same method as described in steps 4 to 6 to bring more objects into the image, e.g. a tree and flowers. The whole thing then looks like this. The scene picture is completed now.



9. Now add a butterfly to the picture. It is located where the house, the tree and the flowers have already been found. Select the butterfly and confirm with the blue checkmark.



10. The butterfly is now in the middle of the picture and can be moved to the preferred position with the finger. In this case the butterfly must be positioned on the left side just above the roof of the house. Move it with your finger as described in step 6.



11. For the butterfly to start flying, it has to be "programmed" to do so. The first thing to do is to make the butterfly flap its wings. To do this, first go to the yellow *Triggering Blocks* and select the starting block with the green flag. Drag this block with your finger downwards into the editing area next to the butterfly.



12. Then the blue *Motion Blocks* are clicked and the block for turning to the right will be placed next to the yellow start block. Then place next to it the blue block for turning to the left.



13. Turning to the right and left simulate the flapping of the wings. This should be maintained the whole time. Therefore, click on the red *End Blocks* and select the appropriate block to repeat this row of blocks continuously.



14. However, the butterfly should not only flap its wings, but also move forward. For this purpose, a second yellow Triggering Block with the green flag must be dragged into the editing area of the butterfly.



15. For the forward movement click on the blue *Motion Blocks* and place the blue block to move to the right next to the yellow start block. To make the butterfly move a bit first, set the value to "8" (click on the number, a keyboard appears, select the appropriate value here). If the children do not yet know the numbers, the blue block can also be placed eight times in a row. The result is the same.



16. Because the butterfly is still relatively far in the back, it should now fly further forward. This effect can be achieved by making the butterfly grow bigger. This will be done again over the purple *Looks Blocks*. Place the purple block to grow behind the blue block. Now you can either switch to the value "4" or, as shown in the picture below, place two of the corresponding *Looks Blocks* one next to the other.



17. Now the butterfly will be moved to the right again with the corresponding blue Motions Block. Change the value to "6" or place the block six times in a row. After that the corresponding purple Looks block will be moved again to get bigger and again the blue block to move to the right. This time with the value "5".

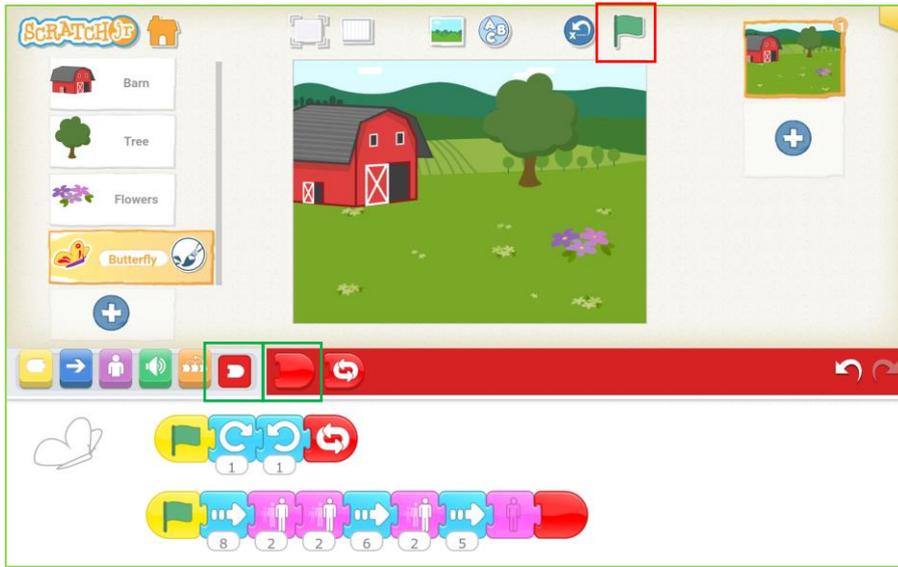


18. In the end, the butterfly should no longer be visible. With the corresponding Looks Block to "hide", which is dragged to the end of the block row, the butterfly disappears after its flight through the picture.



19. The block row will be completed with a red *End Block*. The flight of the butterfly should now also be finished, which is why the first red block is selected here.

The flight of the butterfly can be started by clicking on the green flag.



20. Another click, now on the red hexagon, stops the programme again. You can also run the programme from time to time to see if everything works out as planned. By clicking on the house in the upper left corner, you leave the user interface and save the project at the same time. You can go back to the project from the start screen at any time.



The flight of the butterfly is now fully programmed. The programme can be further developed from here on. Another character can be added, e.g. a dog that chases the butterfly. The inserted objects - the house, the tree and the flowers - can also be animated using the blocks. The characters can be changed in the paint editor. It is also possible to add scenes with other backgrounds.

## ➤ Postprocessing

Talk to the children again at a later date about the project "ScratchJr - Make the Butterfly Fly" and review the results in the group. Let the children explain how they used the different blocks to make the butterfly fly. The children can say what they enjoyed most and what they paid special attention to when programming.

**Tip:** When dealing with digital media and software, unexpected problems can always happen. This is a completely natural part of the digitalised world. So, it should not be a reason for despair when problems arise, but rather an invitation to face the technical challenges and deal with them in a relaxed and humorous way.

With regard to *ScratchJr*, whenever you have difficulties, use the help button where you have a manual with explanations. If you need more information, you can consult: <https://www.scratchjr.org/learn/tips>



Photo credits: Eva-Maria Aurenz /  
*ScratchJr*



Co-funded by the  
Erasmus+ Programme  
of the European Union

