Scratch Project Overview

■ <u>What is Scratch</u>?

Scratch is a programming language that makes it easy to create your own interactive stories, animations, games, music, and art -- and share your creations on the web.

Scratch was designed by the MIT, a famous americaon university in Boston. It is free and can be downloaded at http://scratch.mit.edu/

■ <u>Whatch a few example so you get an idea of what can be done with Scratch</u>

A video-game : File → Open → Games → *Pong*
An animation : File → Open → Animations → *Daydreams*
Interactive art : File → Open → Interactive art → *Kaleidoscope*
An educational game: *Countries in America* by TheoG, http://scratch.mit.edu/projects/lhelmeg/2835024
An educational game: *Multiplication Facts* by TheoG, http://scratch.mit.edu/projects/lhelmeg/2835043
An animated story: *Arrow boy Episode 2* by Fulldroid, http://scratch.mit.edu/projects/fulldroid/2667732
→ Looking at the code of other projetcts may give you ideas.

■ <u>Why learn Scratch</u>?

As you create and share Scratch projects, you learn important mathematical and computational ideas, while also learning to think creatively, reason systematically, and work collaboratively. And it is a fun way to learn programming !

■ <u>How to use Scratch</u>?

The basics: file:///C:/Program%20Files/Scratch/Help/en/ScratchGettingStartedv14.pdf
Scratch reference guide : http://info.scratch.mit.edu/Support/Reference_Guide_1.4

More detailed lessons: http://scratched.media.mit.edu/resources/scratch-lessons-shall-we-learn-scratch-programming-tweens

- *Lesson 1: Drawing a sprite*
- *Lesson 2: Animating a sprite (dance)*
- *Lesson 3: Adding Sounds (Dance to the Beat)*
- *Lesson 4: How to start and stop music by using variables*
- *Lesson 5: Create a Scene in Scratch*
- *Lesson 7: The Pong game*
- *Lesson 10: Designing a Game*
- *Lesson 11: Creating Game sprites*
- *Lesson 12: Adding Game Rules to Game Sprite*
- *Lesson 13: Changing Background when Mario Moves*
- *Lesson 14: Managing Score and Levels (Lesson 14)*

■ <u>Scratch ressources for teachers</u>

A video on giving and receiving feedback : http://scratched.media.mit.edu/stories/sharing-scratch-episode-6-giving-and-receiving-feedback

■ <u>Set-up</u>
- Work in pairs = 2 students per computer;
- Turn on Scratch : There is a yellow cat in the white stage;
- Click on the Earth symbol close to the word « SCRATCH » on the left of the screen and choose « English ».

■ <u>Exercice 1</u> : Have the cat move 200 points to the right [blue block] and then think "Hello" for one second [purple block].

■ <u>Exercice 2</u> : Have the cat walk along an equilateral triangle. As he moves, the triangle is drawn (use the "pen", green blocks). When he is back to his starting point, he thinks for 2 seconds *"Done!"* and then he changes into a different animal (pick the one you want in *New sprites → choose new sprit from file*). In order to change the aspect of a sprite, just create a new *costum.*
Improve it: Add a sound and a background!

■ <u>Exercice 3</u> : The cat (or whatever funny animal you like) walks forever along a square. As he moves, the square is drawn. A variable counts the number of times he walks around the square.

→ *If you wish, you can get some help at*
file:///C:/Program%20Files/Scratch/Help/en/ScratchGettingStartedv14.pdf

Group work : Oral presentations + post project on the website of the MIT with exlplanantions

■ Directions

Work in groups of two students. Your group will decide on a project. It can be a game, an animation, a story... etc. You will have to present your project to the class and also to post it on the website of the MIT with some explanations about how you made it (See the grading rubric for detailed) Make sure you split the oral presentation (so each member of your group gets a chance to talk) and the writing of the explanations.

■ Oral presentation : On monday November 12ᵗʰ.
- Show the project to the class with the LCD projector. Explain what it does and how you made it.
- Be ready to answer questions from your classmates at the end of your presentation (which in turn implies that you should also be ready to ask questions about the work of the other teams!)

■ The project and the corresponding explanatory notes should be posted on the Scratch website http://scratch.mit.edu/ by monday November 19ᵗʰ.
- First, explain what the program does.
- Second, explain how to use the program. For instance, if it's a game "*In order to jump, press the UP arrow key*".
- Third, explain the ideas behind the program : Explain the role of the different variables and loops. For instance, *"We used the variable XXX in order to ..." "the role of XXX is to ... " "We wanted our sprite to bounce off the side of the stage. The way we did this was to ...." "We wanted the sprite to appear exactly when XXX, so we ....".*

■ How your work will be assessed:	Student	Team	
In class group work:			
Used English only while working on the project in class.		X	/3
Worked cooperatively with other team members: listened to other team members, offered ideas. Made constructive rather than agressive comments on the work of other team members.		X	/1
Worked quietly so as not to disturb the other teams (please whisper!)		X	/1
Subtotal			/5
Oral presentation (each member of the team should talk in turn):			
What the program does was explained clearly.	X		/3
The ideas behind the program were explained clearly; answers to questions were satisfactory in terms of content.	X		/8
Speech was loud and clear, at an appropriate speed. English didn't get in the way. The reporter was talking rather than reading his/her notes and looking at people in the room; answers to questions were satisfactory in terms of tone, please be nice to your classmates!		X	/6
Subtotal			/17
The program and its explanatory notes			
The program is correct in terms of mathematics and logic. The program is reasonnably complex: at least 20 lines long, at least 1 variable, at least 3 controls blocks, at leat two costumes for some sprite.	X		/10
The explanatory notes posetd on the Scratch website are well organized and provide the necessary details.	X		/5
Bonus: Excellent design, programming level above expectations.	X		/2
Subtotal			/15
Class sharing			
Listened carefully to the others teams' presentations.		X	/3
Bonus: Offered good comments, asked relevant questions during the others teams' presentations.		X	/2
Subtotal			/3
GRADE		X	/40
GRADE		X	/20

Scratch project Grading Rubric

Group work : Oral presentations + explanatory notes

	Students				Team	
■ How your work will be assessed:						
In class group work:						
Used English only while working on the project in class.					X	/3
Worked cooperatively with other team members: listened to other team members, offered ideas. Made constructive rather than agressive comments on the work of other team members.					X	/1
Worked quietly so as not to disturb the other teams (please whisper!)					X	/1
Subtotal						/5
Oral presentation (each member of the team should talk in turn):						
What the program does was explained clearly.	X	X	X	X		/3
The ideas behind the program were explained clearly; answers to questions were satisfactory in terms of content.	X	X	X	X		/8
Speech was loud and clear, at an appropriate speed. English didn't get in the way. The reporter was talking rather than reading his/her notes and looking at people in the room; answers to questions were satisfactory in terms of tone, please be nice to your classmates!					X	/6
Subtotal						/17
The program and its explanatory notes						
The program is correct in terms of mathematics and logic. The program is reasonnably complex: at least 20 lines long, at least 1 variable, at least 3 controls blocks, at leat two costumes for some sprite.	X	X	X	X		/10
The explanatory notes posetd on the Scratch website are well organized and provide the necessary details.	X	X	X	X		/5
Bonus: Excellent design, programming level above expectations.	X	X	X	X		*/2*
Subtotal						/15
Class sharing						
Listened carefully to the others teams' presentations.					X	/3
Bonus: Offered good comments, asked relevant questions during the others teams' presentations.					X	*/2*
Subtotal						/3
GRADE					X	/40
GRADE					X	/20

Presentation pour le site Euromath

Une activité où les élèves apprennent à programmer de façon simple et ludique grâce au logiciel Scratch développé par le MIT à Boston. Ils travaillent par groupe de deux pour créer un jeu vidéo ou une animation sur Scratch. La grille de notation qui leur est donnée dès le début du projet leur permet de savoir quel sont les attendus, notamment qu'ils doivent communiquer entre eux en anglais uniquement sinon ils perdent des points. Cela permet d'encourager la pratique de l'anglais oral. Ils font une présentation orale du projet puis ils le mettent en ligne sur le site du MIT avec des notes explicatives sur la façon dont cela a été programmé.