Script 01

- The basic structure of a Three.js application.
- A simple example: displaying one cube.
- Adding models to a scene and changing their features

1.1 The basic structure of a Three.js application

Open the file **threejs_ex_01_01_basic_skeleton.html**

Check its organization and identify its main components.

Does the example produce any output? Why?

1.2 A first example using Three.js – Displaying a cube

Open the file **threejs_ex_01_02_a_cube.html**

Analyze the **init()** function:

- See how the **scene**, the **camera** and the **renderer** are instantiated.
- The scene contains just one **cube model**. What are the features of the cube?
- Where is the **camera** and how is it oriented?

Questions:

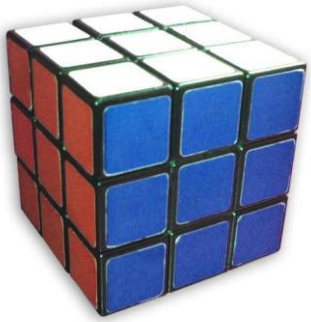
- Open the file in the browser. Why does the cube look so small?
- Why do we only see the silhouette of the cube displayed with a constant color?

Tasks:

- Represent the **coordinate axes** – look for the **AxesHelper** object in the documentation.
- Change the **location of the camera**, so that the displayed cube is larger.
- Represent the cube in **wireframe** mode. Try using the **EdgesGeometry** and the **WireframeGeometry** primitives.
- **IDEA:** represent twice the same cube, both in **wireframe** and **color** mode.
- Add **other models** to the scene – check the Three.js documentation.

1.3 Displaying a "Rubik's Cube"

Based on the previous one, develop a new example that displays a set of **27 cubes** forming a **Rubik's Cube**.



[Wikipedia]

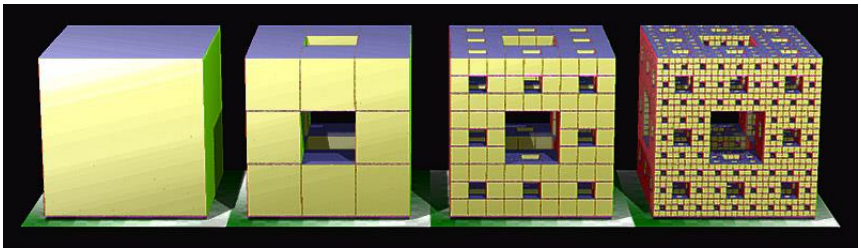
Simplification: display each cube with a different color, but the same color in each one of its faces.

Suggestions:

- Create an auxiliary **function that adds a cube to the scene**. Choose a useful set of function arguments.
- Leave some space between each cube.
- Move the camera to a better location.
- Add one or more **point light sources** or **directional light sources** to the scene.

1.4 Displaying a "Menger Sponge"

Develop a new example that displays a set of different instances of the **Menger Sponge**.



[Wikipedia]

Suggestions:

- Create a **recursive function** that adds a Menger Sponge to the scene. Choose a useful set of function arguments.
- Try to **reproduce the image above**. Can your computer display all those Menger Sponges?