

# Script 02

- Grouping geometric primitives into 3D models.
- Instantiating models and setting position, size and orientation.
- Simple illumination to perceive 3D shape.
- Simple animation: moving models and moving the camera around.

## 2.1 Grouping geometric primitives into 3D models

Open the file **threejs\_ex\_02\_01\_models.html**

### Questions:

- Which **models** make up the scene?
- What are **helper primitives** useful for?

Analyze the **createTree()** function:

- Which primitives are instantiated?
- How are they grouped into a composite model?
- Notice the appropriate positioning that needs to be done.

### Tasks:

- Add **more trees** to the scene --- assign **different sizes** to them.
- Create a **car model**, using a **box primitive** and four **cylinder primitives**.
- Create a **robot model** using a **box primitive** for the body, a **sphere primitive** for the head and four **cylinder primitives** for the legs.
- Add **several** of those **models** to the scene – assign different positions, orientations and sizes to them.

## 2.2 Simple illumination

Open the file **threejs\_ex\_02\_02\_illumination.html**

Analyze how simple illumination was added to the scene:

- A point light source was added.

- The material defining each object is now reflecting light.

**Tasks:**

- Add **illumination** to your previous example.
- **Replace the plane helper** geometry by a **plane geometry**.

**2.3 Simple animation**

Open the file **threejs\_ex\_02\_03\_animation.html**

Analyze how tree model is now being animated:

- What are the changes? How is the rendering being done?
- How is the tree position being changed from frame to frame?
- Where is the **camera** and how is it oriented?

**Tasks:**

- Add **animation** to your previous example.
- **Different models** should have **different behavior**.

**2.4 Improving you example****Tasks:**

- Create two **intersecting streets, with buildings, trees and cars**.
- **Add some animation to the cars**.
- **Add some animation to the camera**.