A LAUNCHER
(or "SPACE ROCKET")

In the following, the text between " " suggests what to say to the children. Questions are in **bold** and actions in *italics.*

This symbol indicates:
things to look at

This symbol indicates:
action to take/activity to do

This symbol indicates:
explanations to delve deeper into the subject

THE ARIANE 5 LAUNCHER

To get a good view of the whole launcher, it is recommended to stand not at the bottom near the French Guiana facilities, but on the esplanade at the end of Infinity Alley (Allée de l'infini).

Details on the launcher

Ask the children to describe the Ariane 5 launcher.

"Here we can see a life-size model of the Ariane 5 launcher.

Right at the top is the **fairing**. That's the last stage, which contains the satellites to be launched into space. Ariane 5 only carries satellites, but other launchers can carry astronauts in this part.

In the middle part of the launcher are three tanks containing what is needed to power the engines, like the fuel tank in a car.

At the base there are three engines with their nozzles. These are big tubes that are wider at the bottom; they actually look a bit like an upside-down ice cream cone."

Invite the children to join you in miming a lift-off.
(You can watch one in the exhibition area of the main building).

Activity

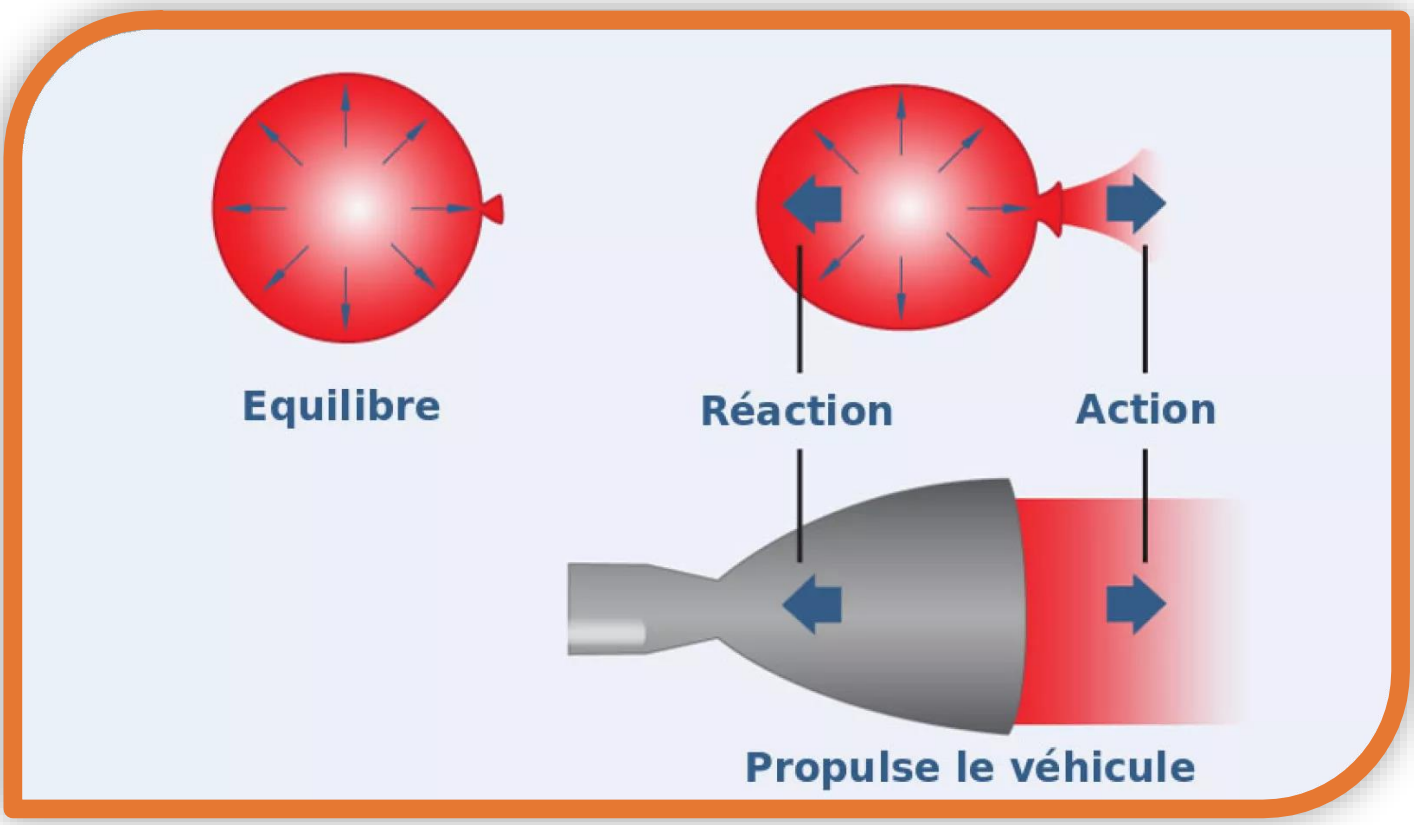
Launcher engines

(to be prepared beforehand)

(*Buy balloons before your visit*)
“The engine of a launcher helps it lift off the ground. It sends gas very quickly and powerfully down towards the bottom of the launcher. The launcher reacts by heading up into the sky.

It’s a bit like a balloon releasing air.”

Blow up a balloon then let it go. It will fly in the opposite direction to the air it ejects.



Details on the launcher

This is the exploded view of a launcher. You can see the satellite inside.

“A launcher works a bit like a catapult; it sends its package into space but comes back to Earth. That’s why its proper name is launcher and not space rocket.”

It is not possible to go inside the Ariane 5 model. However, a fun activity to do is to ask the whole class to gather under the engine to see how big its nozzle is.
You have to climb down from the esplanade and move underneath the launcher.

Point out the various flags, then ask the children to find the French flag on the boosters.

Activity

How tall is the launcher?

"The launcher is 53 m tall."
To better visualise how tall the launcher really is, ask the class to imagine it lying down along Infinity Alley (Allée de l'infini). It would start at the esplanade railing and reach the Sun in front of the planet model in the outdoor garden area (see photo below).
You can place some of the children at the railing and others at the Sun. The distance between the two groups corresponds to the launcher height.

Activity

Build your own Ariane launcher

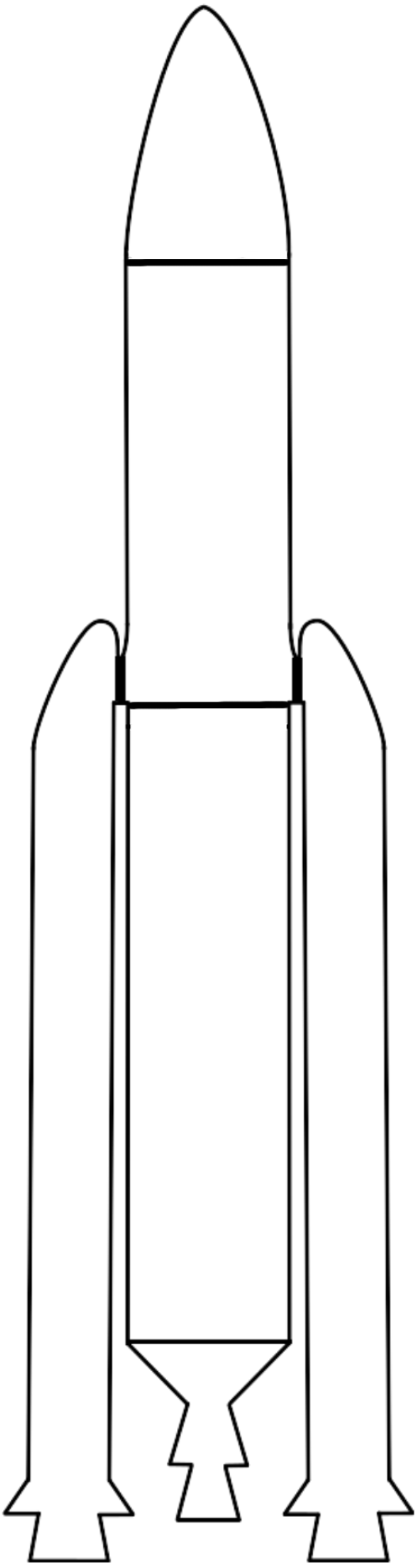
(activity to be prepared beforehand)
Print and cut out the parts on the following pages and ask the class to

- **Level 1**: put the Ariane launcher together using a template.
- **Level 2**: put the Ariane launcher together using an outline.
- **Level 3**: put the Ariane launcher together by observing it in the Cité de l'Espace.

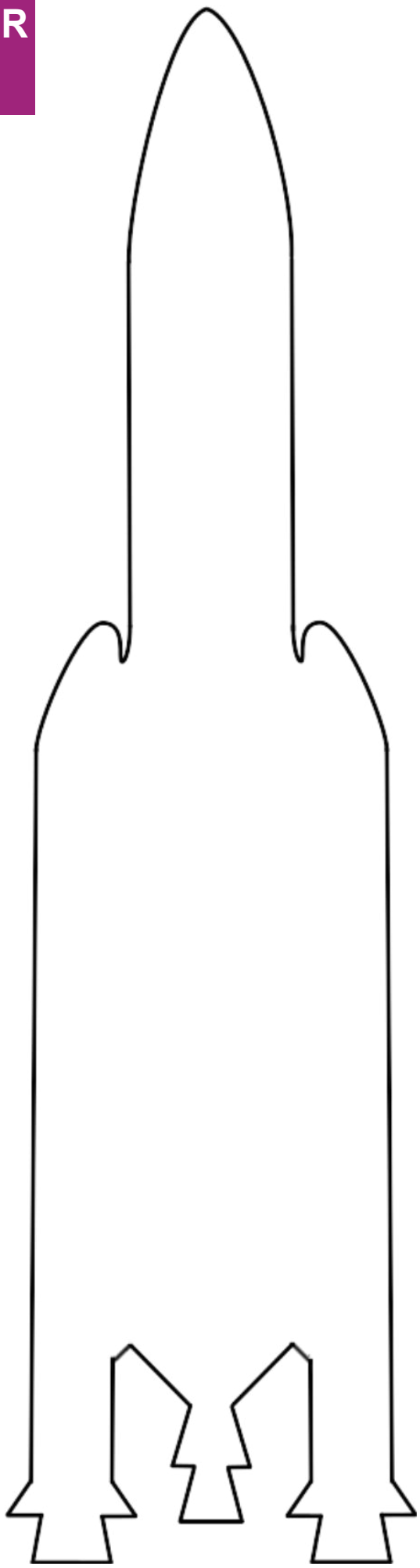
Tip: For this activity, we recommend using an A3 or A4 magnetic board on which the children can place the different pieces of the puzzle, each piece having a bit of magnetic adhesive tape on the back.

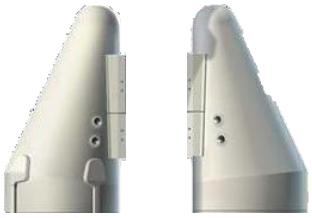
Ready? 3…2…1 ….do your puzzles!

ARIANE LAUNCHER – LEVEL 1



ARIANE LAUNCHER – LEVEL 2

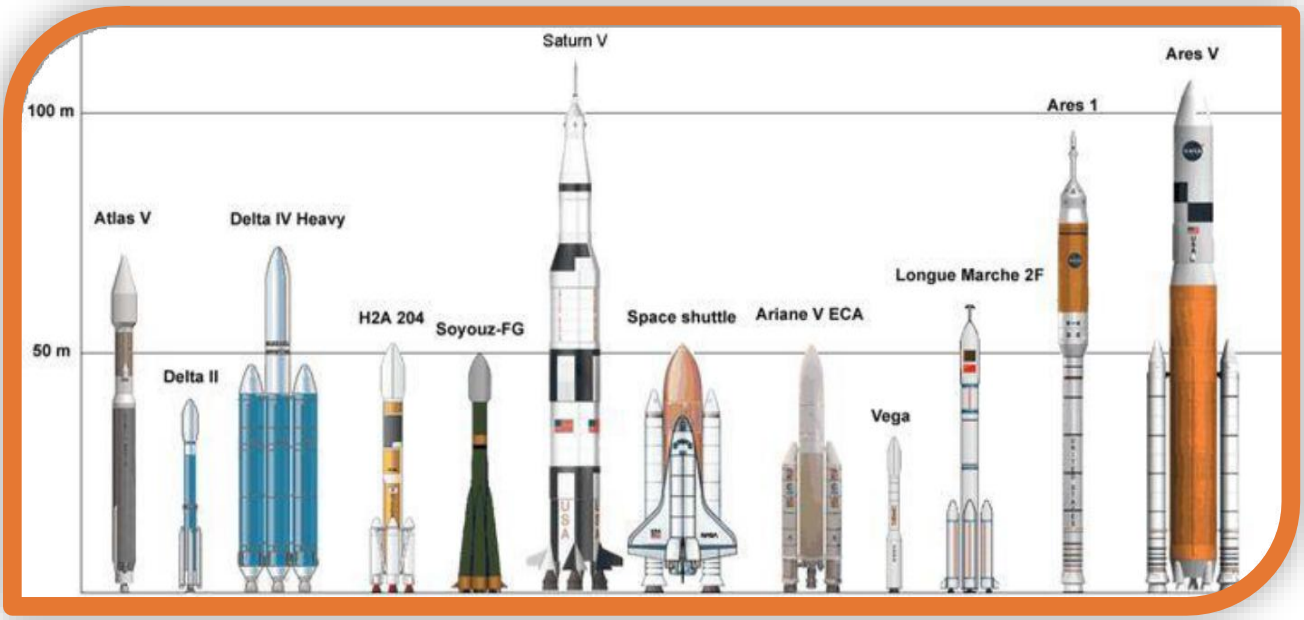




ARIANE LAUNCHER – LEVEL 2

ARIANE LAUNCHER – LEVEL 3

Launchers come in all different shapes and sizes. Some are twice as big as our model and all weigh several hundred tonnes. Ariane 5 weighs 780 tonnes, which is the same as 16 big lorries.



Contrary to popular belief, a launcher is not a spacecraft; it does not travel through space, but only stays there long enough to release its payload: satellites, spacecraft, probes for exploring other planets, etc.

Key points

- **The launcher is made up of different parts that help it lift off from Earth and take objects and humans into space.**
- **It has very powerful engines that expel gas to make it lift off.**