Our Solar System

Session 3-4

TIME
90 min. including break

Art of learning

THEME 19

WARM-UP: "AYE, AYE SPACESHIP CAPTAIN" – MISSION TO MARS, JUPITER, SATURN, URANUS AND NEPTUNE

This will happen:	The students embark on further space missions focusing on Mars, Jupiter and Saturn (Session 3) and Uranus and Neptune (Session 4) and follow orders from their Captain.
Materials needed:	T19 Warm up spaceship sound (resource bank). Use making tape to create a spaceship outline on the floor. T19 Photos and facts for the warm-up (resource bank). Music player.
Preparations in advance:	Make a spaceship on the floor with masking tape.
Preparations in the space:	Check that the sound system works. Create a spaceship on the floor with masking tape (with room for the whole class to stand together with room to spread out).
The space looks like this:	Classroom.

GUIDANCE:

1. The mission starts with a practice following the Spaceship Captain's instructions carefully.

2. "Astronauts" – students answer "Aye, Aye Captain!" and they bring the back of their hand up to their forehead and stand up straight. Practise some new commands and repeat some of the familiar ones:

"We are ready for take off" – students put on fictional helmets and get themselves in the starting position.
"Take off' – hands on the safety harnesses (over both shoulders) and respond by saying "bump-bump-bump" and shaking up and down.
"Lean right' – repeat the command, then lean right.
"Lean left' – repeat the command, then lean left.
"Lean back" – repeat the command, then lean back.
"Lean forward" - repeat the command, then lean forward.
"Landing" - respond by saying "bump, bump, bump" and put their heads between their legs and arms above their heads.
"Briefing" - everyone sits down on the floor with their hands under their chin. (explain the description of the mission).
"Solar flare" (eruption from a solar storm) – everyone must quickly gather in a corner of the spacecraft (which is protected by lead).
"Solar flare has past" – all quickly back in place.
During launch: "Deploy rocket" – Hands straight out to the sides with spread fingers and the sound "pchhh". Can be repeated up to 3 times during launch – three different rockets are deployed.
In space: "Weightless" - students turn to another student, they lean forward towards each other, hold hands and put one foot up in the air.

<u>New commands (all given in space during the quiet part of the music):</u>
"Stir the oxygen tanks" – spinning around themselves
"Life support" (means grab everything necessary for people to survive on board, including pressure, oxygen, water and toilet) – two people use their arms to make a chair and a third person sits on it
"Sleep" – one student places their arms around another from behind, like a belt. The one in front drops their head and closes their eyes.

3. Begin the mission, the Captain says, "Astronauts," waits for an answer, then says, "Briefing."

4. Session 3:
Describe the mission's goal, which is an orbit around Jupiter and Saturn, before landing on Mars. Describe the facts about the first planet on the mission: Jupiter.
Session 4:
Describe the facts about the mission which is a very long journey to two gas planets they can't stop at, Uranus and Neptune. Describe the facts about the first planet on the mission: Uranus.

5. Begin the mission, say, "We are ready for takeoff." Play the T19 Warm up spaceship music (resource bank). Start by counting down from 10 in English and then together say, "Lift off."

6. Do a variation of the rehearsed commands.

7. Session 3:
Travel to Jupiter and then Saturn (Session 3). Describe the facts about Saturn. Land on Mars. Describe the facts about Mars.
Session 4:
Travel past Uranus and then Neptune. Describe the facts about Neptune.

8. Return to Earth.

NOTES

Our Solar System

Session 3-4

WARNINGS

⚠ preparations

TIME

90 min. including break

Art of learning

THEME 19

REFLECTION: OUR SOLAR SYSTEM QUIZ ENGLISH YES/NO AND YES/A

This will happen:	Students use Yes/No and Yes/B reflection cards to show answers to statements about the Solar System.
Materials needed:	T19 reflection card – one set for each student.
The space looks like this:	Classroom.

GUIDANCE: Open the Golden Chest. Hand out a set of reflection cards to each student. Explain that some statements will be read out and that students need to listen carefully. Count up to five and when it gets to five, the students should hold up the card they think is correct.
Do the Solar System Quiz:
Session 3: If the statement is correct, they should choose the Yes card and if it is wrong, they should choose the No card. Do a practice: I've made the planet Jupiter today. Yes or No.
Session 4: Instead of Yes/No, use YES for Yes and A for no. Do a practice: We live on Mars: Yes card for yes or A card for no.

Session 3

1. I know what happens when you spill water inside a spaceship in space – **Yes or No**
2. 'Life support systems' on spaceships means, among other things, going to the bathroom – **Yes** or No
3. Jupiter is the largest planet in the solar system – **Yes** or No
4. I can't wait to burst the balloons inside the yarn planets – **Yes** or **No**
5. Saturn is a rocky planet – Yes or **No**
6. **Philosophical question: Is there life on other planets?** (this should not be answered just thought about)
7. When you are 1 year old, on Saturn you are 29 Earth years old – **Yes** or No
8. There have been humans on Mars – Yes or **No**
9. Martians live on Mars – Yes or **No**
10. I have contributed well to the group work today – **Yes** or **No**

Session 4

1. Uranus is my favourite planet – **Yes** or **A**
2. Uranus is a rocky planet – Yes or **A**
3. Uranus spins the opposite way to Earth – **Yes** or A
4. I've enjoyed making planets – **Yes** or **A**
5. **Philosophical question: What is a human being in the universe?** (this should not be answered)
6. Astronauts float around in the spaceship – Yes or **A**
7. Neptune is the planet furthest from the Sun – **Yes** or A
8. Neptune is dark, cold and windy – **Yes** or A
9. I like the soundtrack we hear in the warm-up – **Yes** or **A**
10. I would like to be an astronaut – **Yes** or **A**

MAIN ACTIVITY: WORKING IN GROUPS TO MAKE A SCALE MODEL OF THE SOLAR SYSTEM USING A RANGE OF TECHNIQUES ⚠

This will happen:	Working in groups the students will create a model of the Solar System to the correct scale.
Materials needed:	T1902 Solar System technique description (see detailed list of material here! resource bank), T1902 Solar system table – 1 copy for each group (resource bank), T1901 Solar System fact sheet (from Session 1 – resource bank), a ruler for each group.
Preparations in advance:	Refer to the document Making our Solar System Techniques (resource bank). This can also be used to show examples in the session. Source all the materials as described in the Making our Solar System Techniques documents and think about how the sessions can be structured so that as much time as possible is made available for the students to make the models. Print out the T1902 Solar System tables (resource bank) and add these with examples in the Golden Chest. Include an example of the mini models (in the bag) from Session 1 as well as the fact sheets about the planets from Session 1.
Preparations in the space:	Prepare materials, set up group tables.
The space looks like this:	Classroom/craft room with students working on group tables.

GUIDANCE: This task goes over both sessions 3 and 4:

- Put the students into groups who will work together to make a complete set of planets in the Solar System to scale relative to each other and the Sun created in Session 2. Explain what scale means, referring to the mini models in Session 1. Give each group a Solar System table and demonstrate how to measure diameter and how to tick off each planet on the table as it is finished. Explain the different techniques they will use: yarn, balloons and self-drying clay.
- Let each group agree on a group name (which will be used to label all their planets as they are made) and how they will distribute the work needed to make the planets among themselves. Ask them if everyone should begin by working together on one planet, or should they divide themselves up? Who's going to make what planet? Offer support only if necessary and allow the groups to work through the challenges by themselves as much as possible.
- The groups make their planets and hang the finished models to dry as they go.

As the groups finish, ask the students to create posters with information about each of the planets. These will be hung together with the planets outdoors in Session 5. These can be laminated so that they are more durable for outdoors. Ask how far from the Sun do they think this planet will be when the Sun is this size? (ask if the students can make a hypothesis).
Otherwise, refer to Session 5 for other preparations that can be carried out in Sessions 3 and 4 if there is time available.