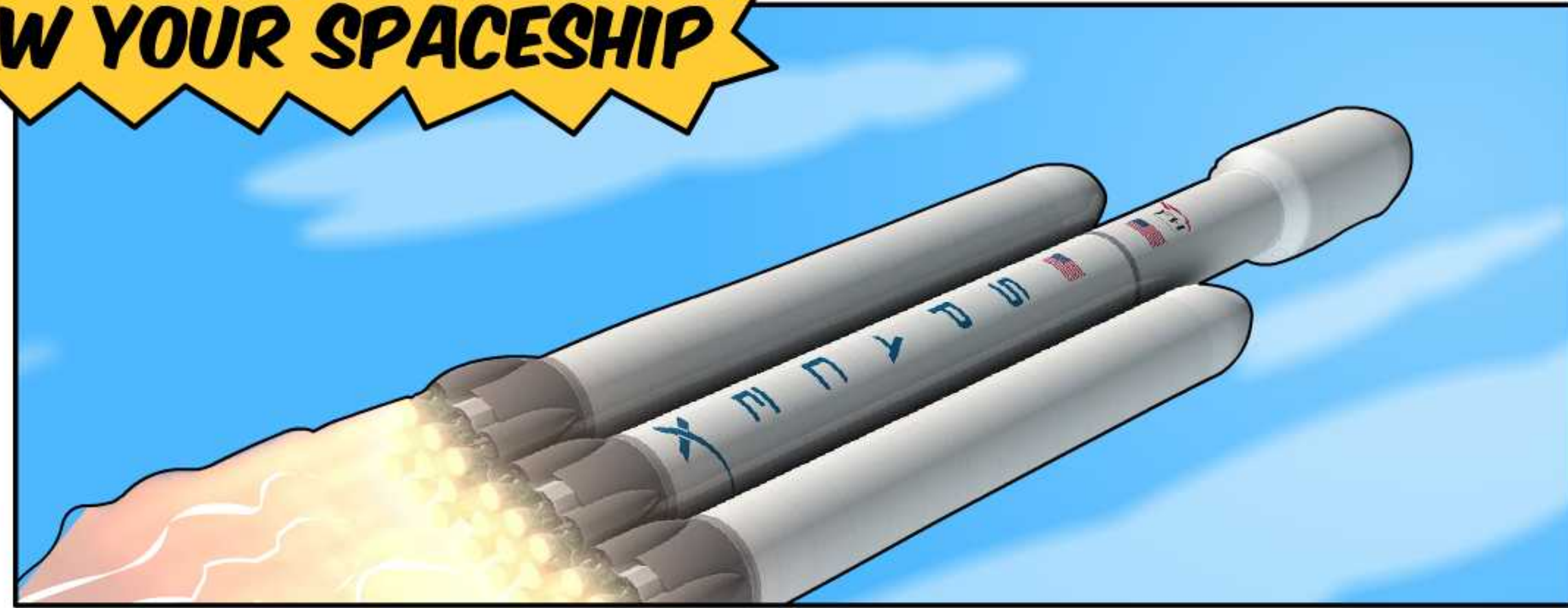
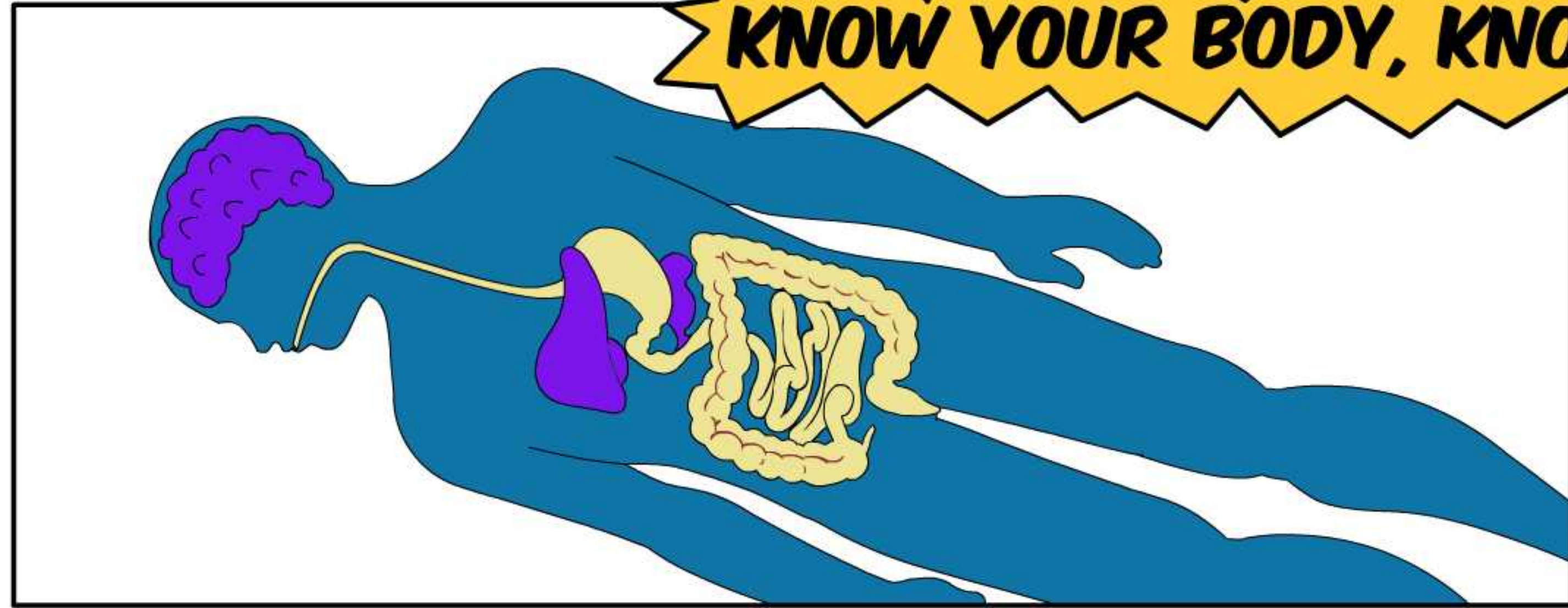


Welcome Stellar Teacher! Let's Grow Some Astronauts.

KNOW YOUR BODY, KNOW YOUR SPACESHIP



MISSION CONTROL (TEACHERS CORNER)



CURRICULUM OUTCOMES

The Human Body Students will be able to identify the parts and functions of all aspects of the digestive system.

Space Exploration Students will be able to identify technologies used in space exploration.



TIME FLOW

- | | |
|--|---|
| A. Let's Activate! - Energy Flow Activity | 20 - 30 minutes depending on debrief conversation |
| B. Micro Mission - Know Your Body | 45 minutes |
| B. Micro Mission - Know Your Ship | 45 minutes |
| C. The Big Bang - Making Connections | 45 minutes |



RESOURCES

StarAcers.com has links for your mission!

A scientific report outline in the Common Documents

Student and teacher rubrics - Pages 07 and 08

A. LET'S ACTIVATE (GROUP ACTIVITY)

ENERGY FLOW ACTIVITY (BASED ON 25 STUDENTS)

This activity can be used to introduce students to the concept of how energy flows through a system. Students are either food or part of the large intestine. This activity is best done with at least 25 students, but a 1 to 5 ratio will do.

Food (5 students): Wear Flag Football flags

Digestive System (20 students): Stand in two parallel lines of 10 students each

The 5 students representing food hold hands together as they approach the lines of students representing the digestive system. As they enter, students are forced to break up and enter single file. As the food travels through the digestive system, get the students in the lines to pull flags off the food to represent the glucose transfer. As the food reaches the end of the line, they now turn into waste and leave the digestive system.

The game can be used in a similar fashion to illustrate the transformation of energy in a rocket using the appropriate terminology. (fuel=food, combustion chamber=digestive system, exhaust=waste, etc.). Debrief with the students as to what just happened.

The focus is on energy transfer.

Extensions:

The game can be expanded to incorporate other systems that interact with the digestive system.

KNOW YOUR BODY, KNOW YOUR SPACESHIP

PART 1 - THE BRIEFING ROOM

"Welcome to StarAcer training. My name is **Colonel Godfard**, a **StarAcer** graduate **exoflaur**. Before you spend time in a spaceship, it is important to understand how they work and operate. The best way to understand a spaceship is to examine a similar system - your body! For this mission, we'll learn about the digestive system, as we all enjoy eating food. Here is your mission briefing. Good luck **StarAcers!**"

Every system needs energy. Neither your body, nor a spaceship could survive with out it. The human body has various systems that work together to allow us to do a variety of things just like a space ship has a number of systems that allow it to orbit the earth. To become a StarAcer you must know your body, and know your spaceship.

**A LET'S ACTIVATE!
ENERGY FLOW ACTIVITY**

Okay, StarAcers. Mission Control has a fun activity that will have you travel through the human digestive system and the combustion chamber of a rocket! You'll find this a transforming experience.

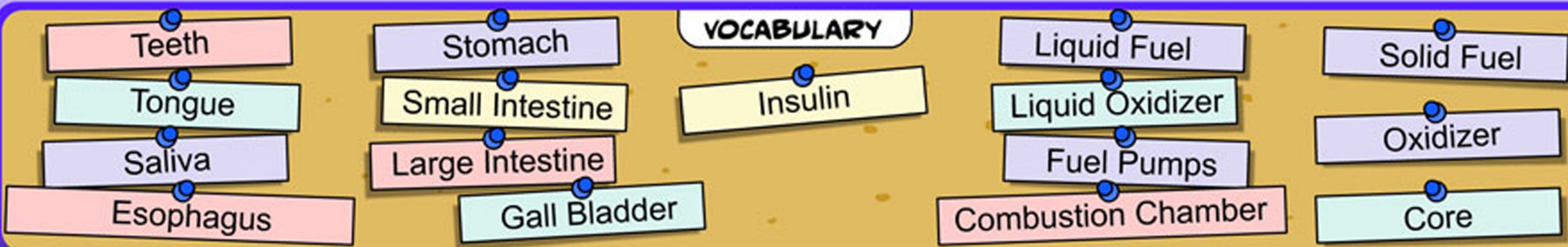
**B MICRO MISSIONS -
KNOW YOUR BODY AND KNOW YOUR SPACESHIP**

You have just exited two important systems, StarAcers. How cool was that? Hey, it would have been neat if there really were little people pulling glucose from your food, but that's just a representation of how it all works. It is now time to see how this system really works, using the digestive system outline given to you by Mission Control, to complete the following:

- Label all parts of the digestive system/rocket system from beginning to end.
- Describe the function of each part of the digestive system
- Identify what part of the system allows:
 - energy in (colour yellow)
 - conversion of energy (colour green)
 - waste removal (colour orange)

In your own words, explain how food/fuel is converted into usable energy.

PART 2 - THE POCKET GUIDE



KNOW YOUR BODY, KNOW YOUR SPACESHIP

**C THE BIG BANG -
MAKING CONNECTIONS**

Congratulations StarAcers! Take a seat and have a look at what you've just created. Using a large piece of poster paper, attach your outlines as shown below. Looking at the two outlines you've just created, determine the similarities and differences between your digestive system, and the propulsion system you chose from the rocket.



Imagine yourself as a real astronaut! Fill out your avatar sheet! Color your astronaut suit however you want. Maybe it has tiger stripes, maybe it's all red! Draw or write in your SPECIAL EQUIPMENT!

StarAcers

AVATAR DATA FACTS!
NAME: _____
RANK: _____
HOBBIES: _____
FAVORITE PLANET: _____

WHERE YOU ARE FROM
TOWN: _____
COUNTRY: _____
PLANET: _____
STAR: _____
GALAXY: _____

WHERE YOU ARE GOING

SPECIAL EQUIPMENT

VIDEO CAMERA
LIGHTS
HELMET
COMMUNICATIONS
PRIMARY LIFE SUPPORT SYSTEM (PLSS)
TEMPERATURE CONTROL
GLOVES

Check out staracers.com!

CHECK YOUR DATA!

Do the Rubric!

EXTRA MICRO-MISSION

Fill out the Avatar Sheet!

Want a challenge? Try answering these questions:

Does gravity play a role in digestion?

Does gravity affect the amount of energy required for a rocket and if so, why?

Mission 001: Know Your Body, Know Your Spaceship

Life Sciences: Human Body and Organ Systems, Maintaining a Healthy Body
5BC, 5SK, 5ON, 5YK, 5NWT

KNOW YOUR BODY, KNOW YOUR SPACESHIP

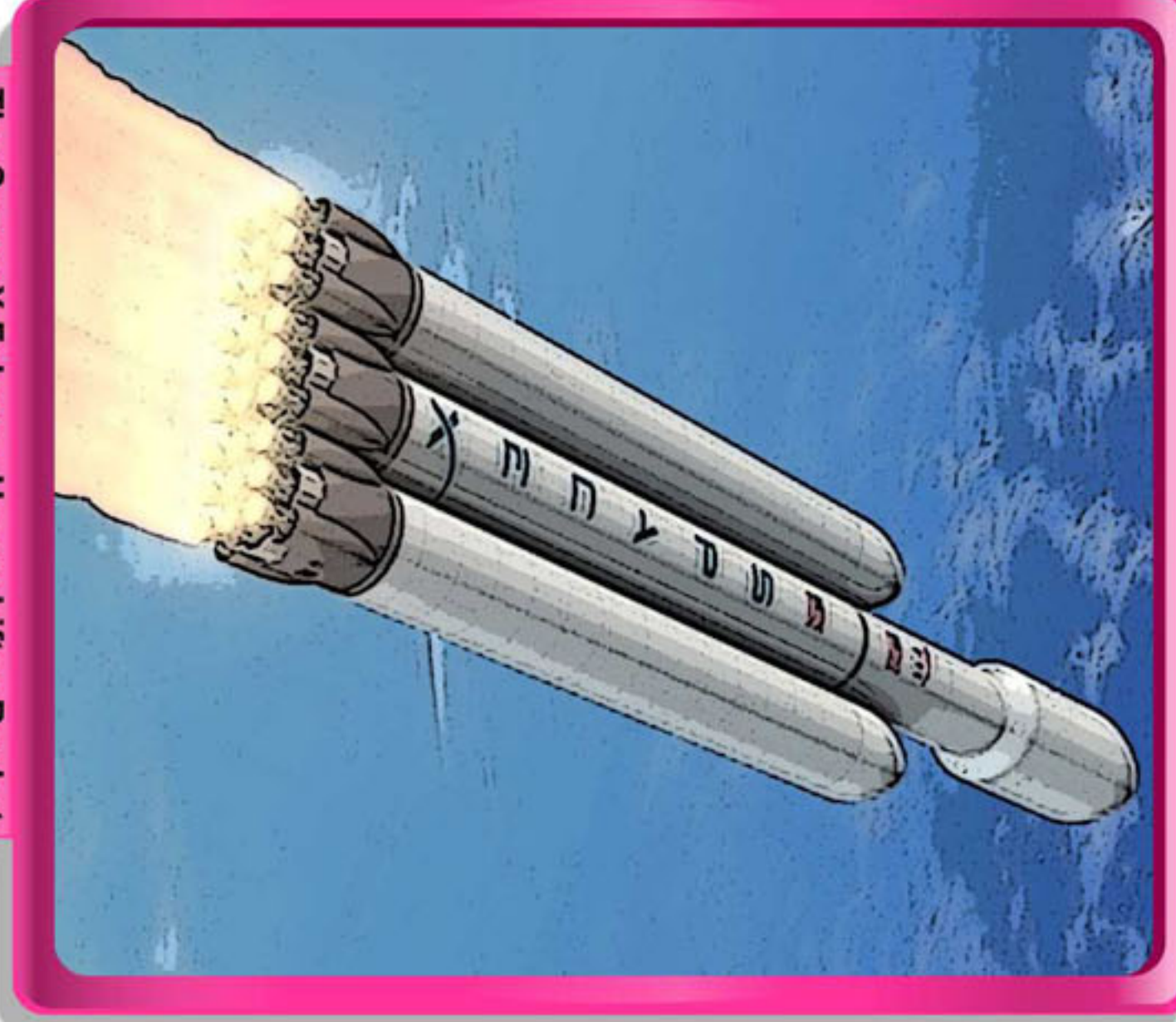
MISSION 001 ANSWER KEYS:

StarAcer™
ACADEMY

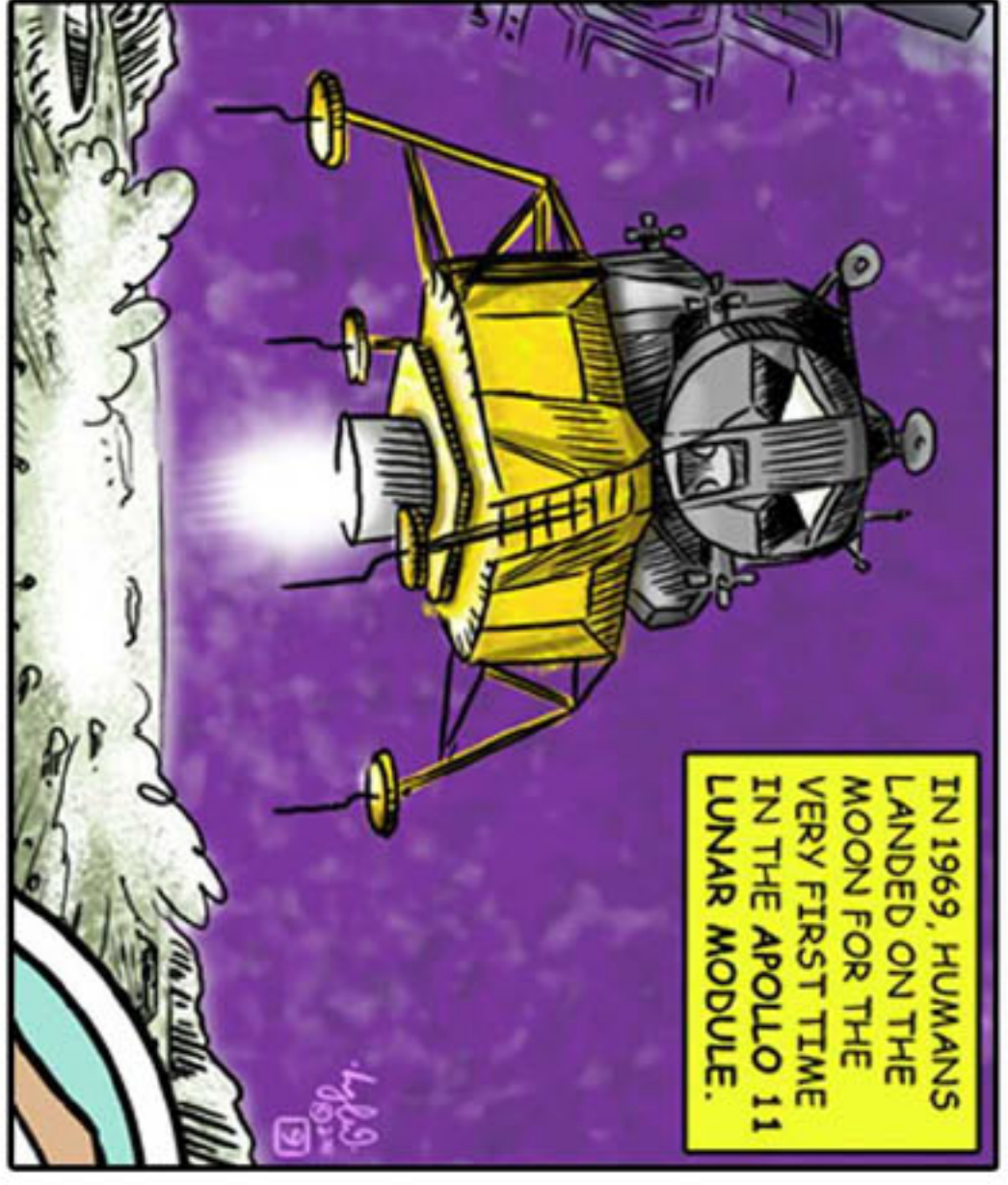
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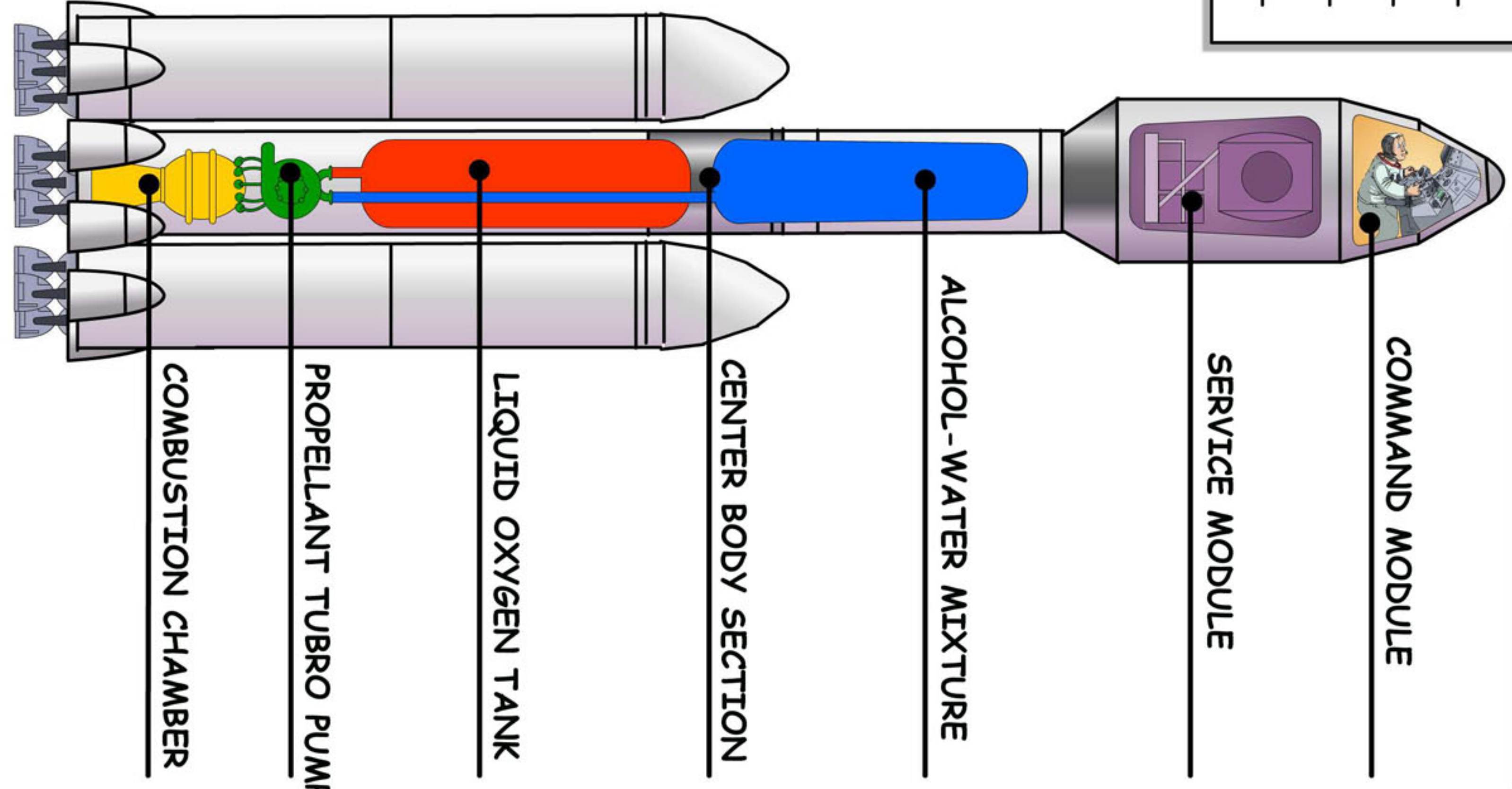
WHERE DO YOU WANT TO GO IN YOUR SPACESHIP?



The Space X Falcon - Heavy Lifter Rocket



IN 1969, HUMANS LANDED ON THE MOON FOR THE VERY FIRST TIME IN THE APOLLO 11 LUNAR MODULE.



COMMAND MODULE
SERVICE MODULE
ALCOHOL-WATER MIXTURE
CENTER BODY SECTION
LIQUID OXYGEN TANK
PROPELLANT TURBO PUMP
COMBUSTION CHAMBER

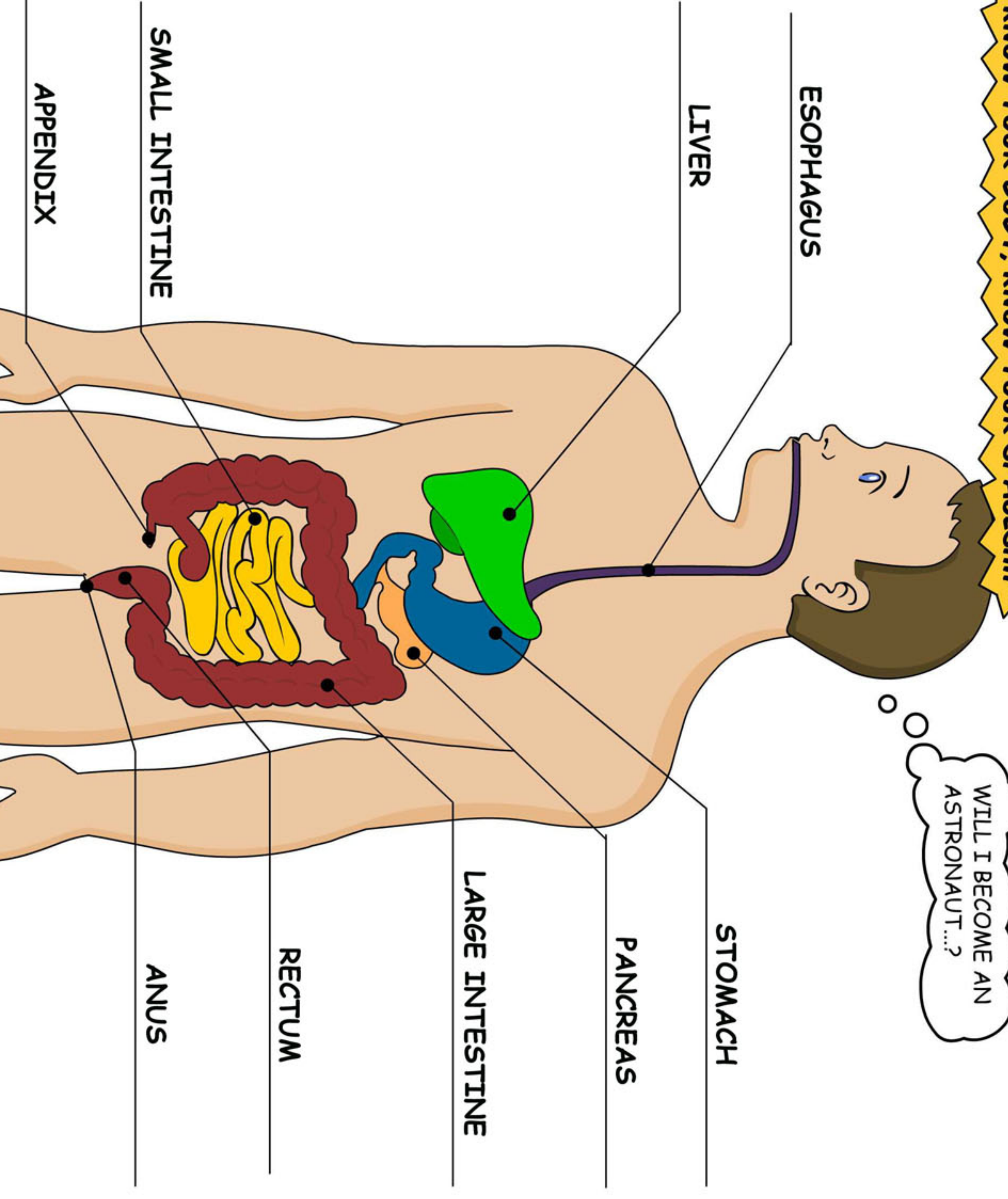
Hi StarAcer! LABEL THE PARTS OF YOUR SPACESHIP BEFORE IT BLASTS OFF.

StarAcer™
ACADEMY

Mission 001: Know Your Body, Know Your Spaceship
Life Sciences: Human Body and Organ Systems, Maintaining a Healthy Body
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KNOW YOUR BODY, KNOW YOUR SPACESHIP

WILL I BECOME AN ASTRONAUT...?



ESOPHAGUS
LIVER
STOMACH
PANCREAS
LARGE INTESTINE
RECTUM
ANUS
SMALL INTESTINE
APPENDIX

Hi StarAcer! In your own words, explain how food/fuel is converted into usable energy.

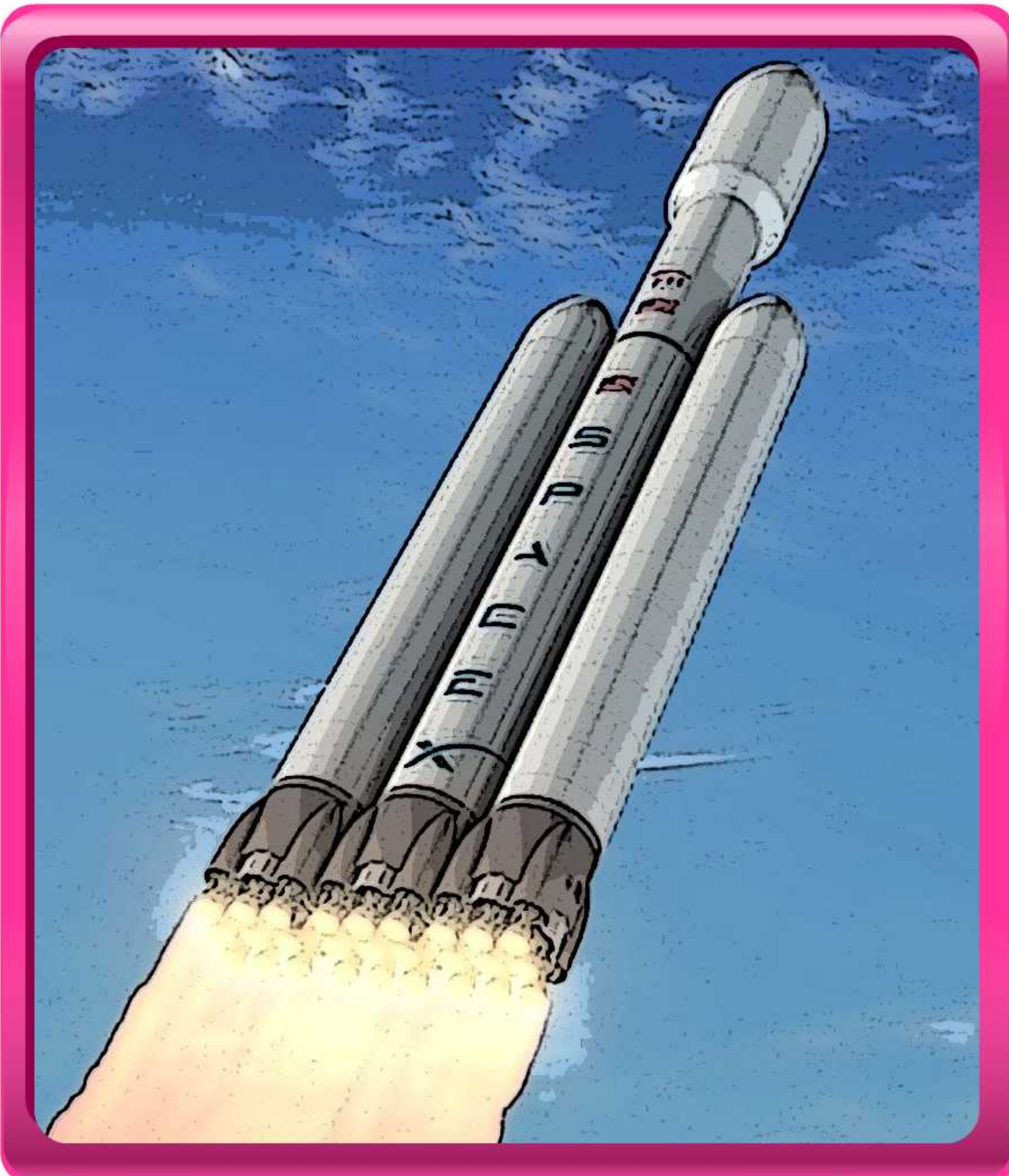
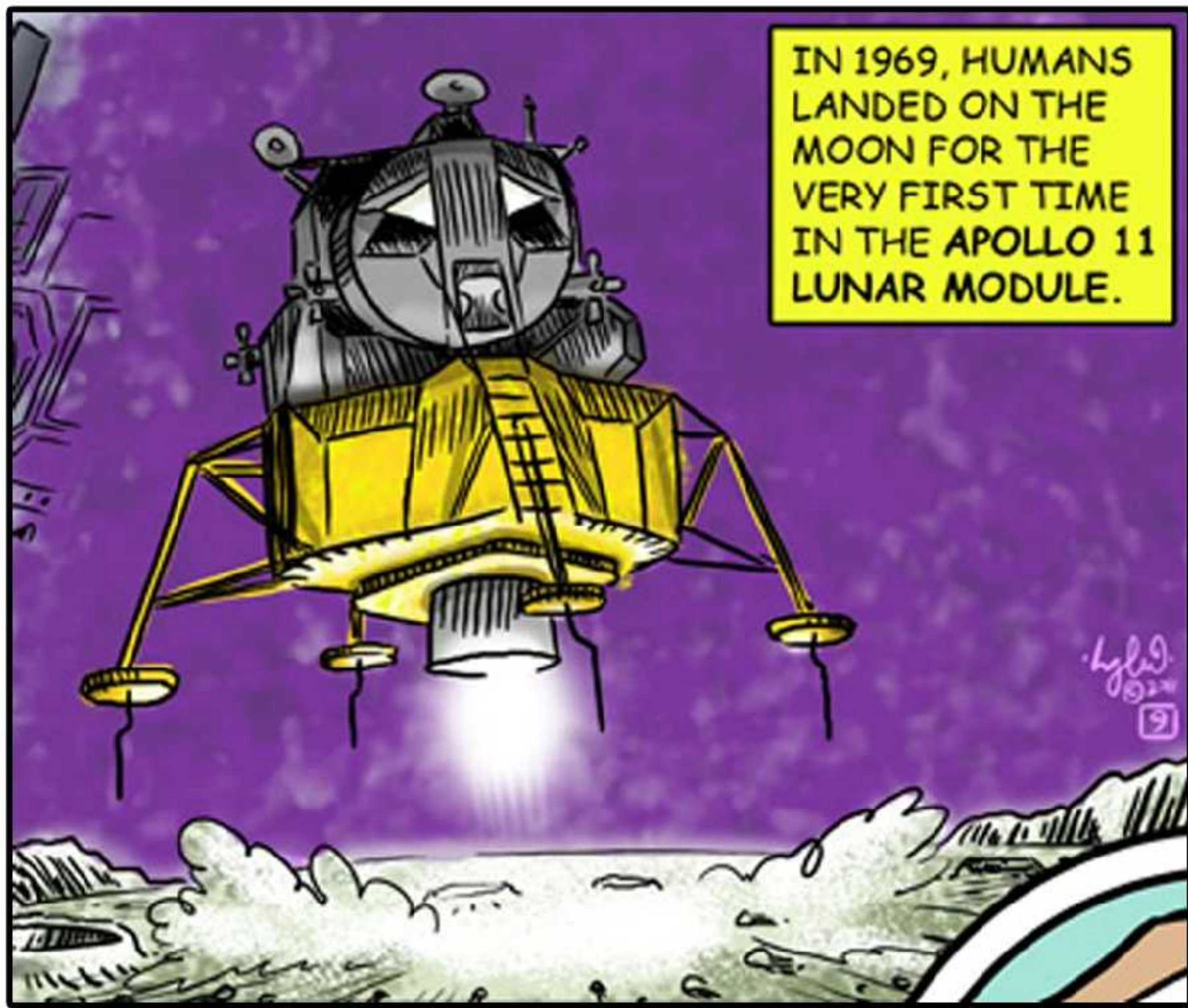
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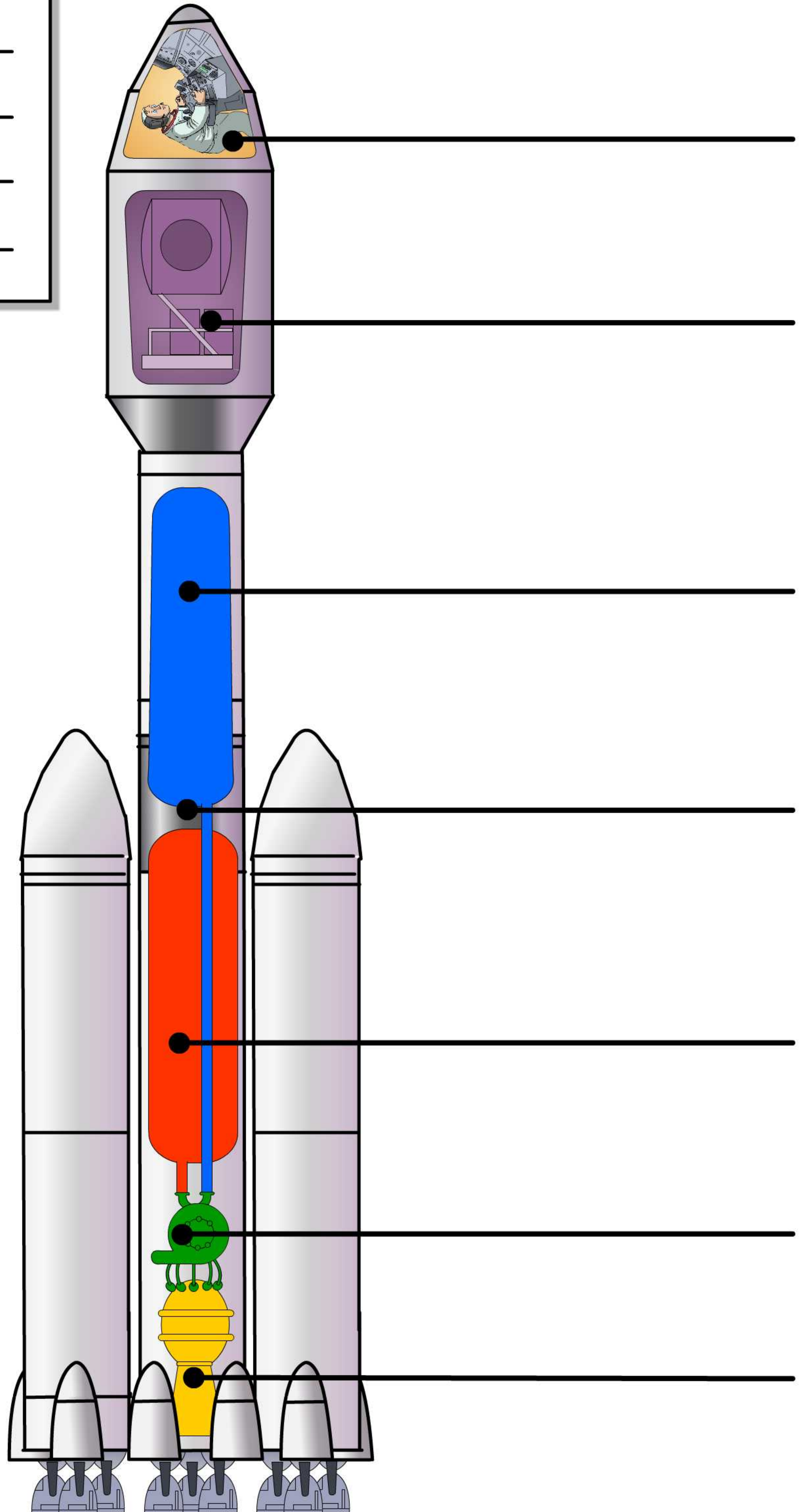
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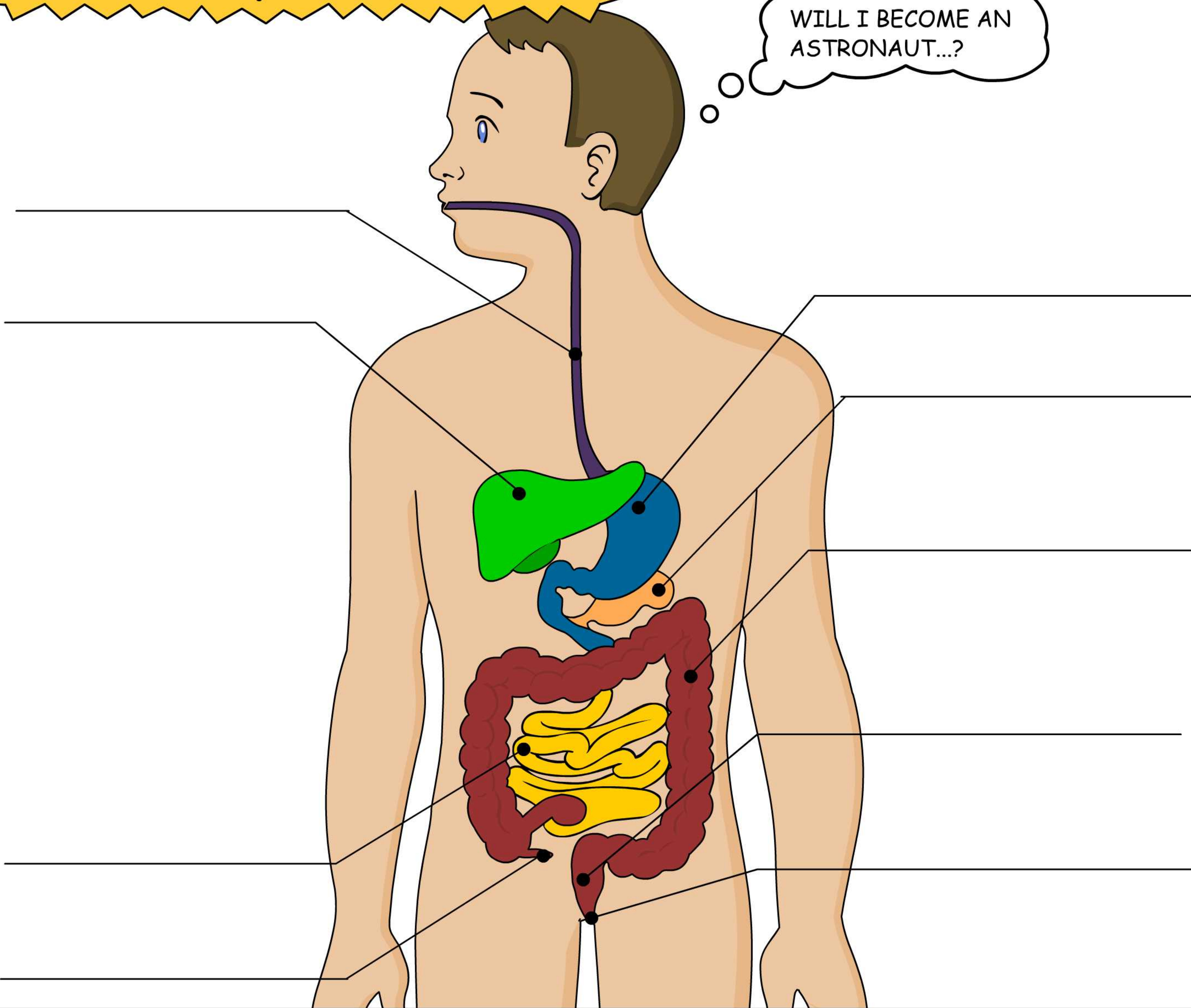


The Space X Falcon - Heavy Lifter Rocket



KNOW YOUR BODY, KNOW YOUR SPACESHIP

WILL I BECOME AN
ASTRONAUT...?



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SIMILARITIES

DIFFERENCES

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StarAcers

SPECIAL EQUIPMENT

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STAR: _____

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WHERE YOU ARE GOING

