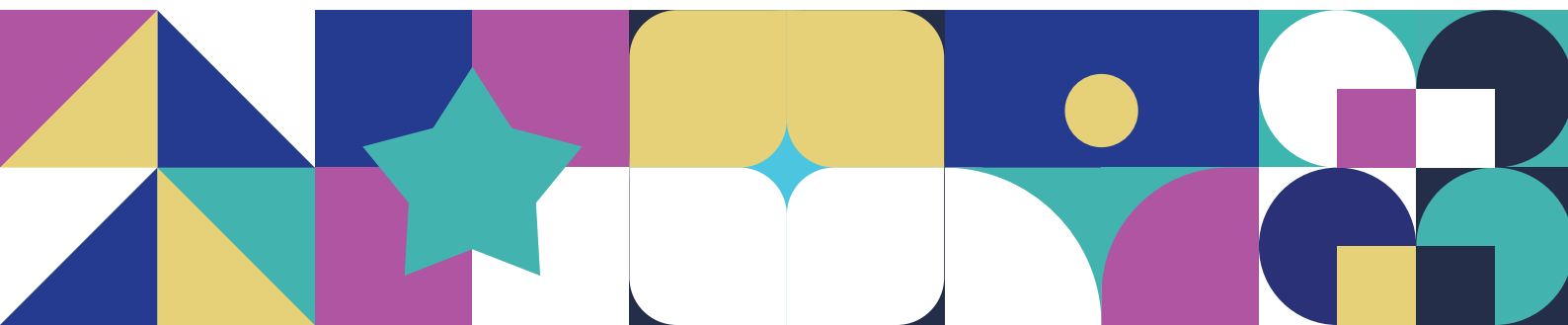
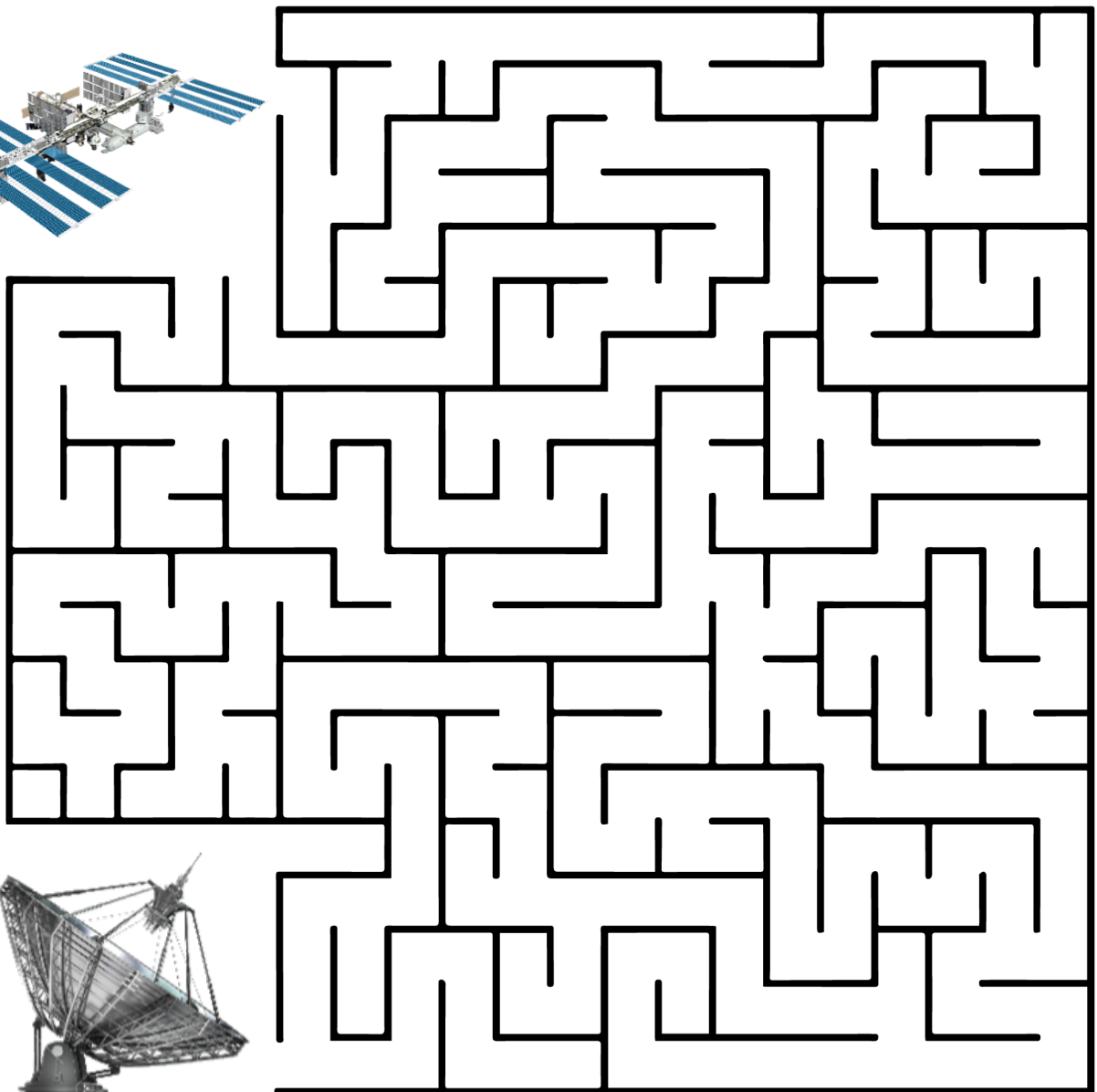
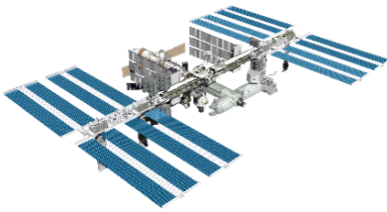


**EPISODE 14**  
**Communication**  
**in Space**



## Ages 4-7:

The astronauts in space need to be constantly in contact with earth. Messages are always being sent from earth to the ISS. We use satellites and radio dishes to send our messages. Can you help the message from earth reach the ISS?



## Ages 8-14:

Astronauts live around 400 kilometres above the surface of the earth. They have to use devices to talk over this long distance. We can make a simple device to speak over a short distance with simple items! All we need is string, scissors, and two cups. Follow the instructions below and start talking to your friends from across the room! Without having to raise your voice at all!

1. Begin by taking one of the cups and making a small hole at the bottom using the scissors. Make sure the hole is big enough for the string to pass through but not too large.
2. Repeat the same step with the other cup, making a hole in the bottom.
3. Take one end of the string and thread it through the hole in one of the cups from the inside, pulling it all the way through until the end of the string is hanging out of the cup.
4. Tie a knot at the end of the string inside the cup to prevent it from slipping back through the hole. You can also tie a knot in the string outside the cup to secure it.
5. Repeat the process with the other end of the string, threading it through the hole in the second cup from the inside and tying a knot inside the cup to secure it.
6. Now you should have two cups connected by a string, with a knot inside each cup to hold the string in place.
7. To test the string phone, have one person hold one cup to their ear while the other person holds the second cup to their mouth.
8. The person speaking into the cup should talk in a normal voice while the other person listens carefully. Keep the string taut to make sure it works properly.

Share your results using #ELFInSpace

# Ages 15+:

We learned multiple terms in today's episode, some of those words along with other words related to communication are hidden below. Can you find them?

E	N	S	I	O	D	E	E	P	S	P	A	C	E
E	O	A	R	R	A	D	I	O	I	T	D	P	T
R	P	T	E	E	K	R	S	T	N	E	T	M	R
T	N	E	V	E	R	E	E	W	N	E	R	A	A
A	H	L	O	E	O	P	L	L	N	T	N	M	N
L	E	L	R	T	W	O	M	R	I	A	R	S	S
C	A	I	V	T	T	R	E	D	M	B	E	I	M
O	N	T	P	N	E	T	E	P	N	N	O	E	I
M	T	E	T	C	N	K	A	E	H	E	S	M	S
P	E	K	E	I	O	B	E	A	N	O	A	U	S
U	N	E	O	M	I	T	G	G	A	T	N	A	I
T	N	E	T	A	B	L	E	T	R	P	R	E	O
E	A	E	G	A	S	S	E	M	O	W	R	V	N
R	P	N	S	I	G	N	A	L	E	O	T	L	A

<b>MOBILE</b>	<b>SATELLITE</b>	<b>SIGNAL</b>	<b>TABLET</b>	<b>INTERNET</b>
<b>NETWORK</b>	<b>ANTENNA</b>	<b>TRANSMISSION</b>	<b>ROVER</b>	<b>RADIO</b>
<b>COMPUTER</b>	<b>REPORT</b>	<b>DEEP SPACE</b>	<b>MESSAGE</b>	<b>PHONE</b>