

GRACE

*Gravity Recovery And Climate Experiment
Coloring and Activity Book*



Hi Kids!
Follow Us!

JERRY

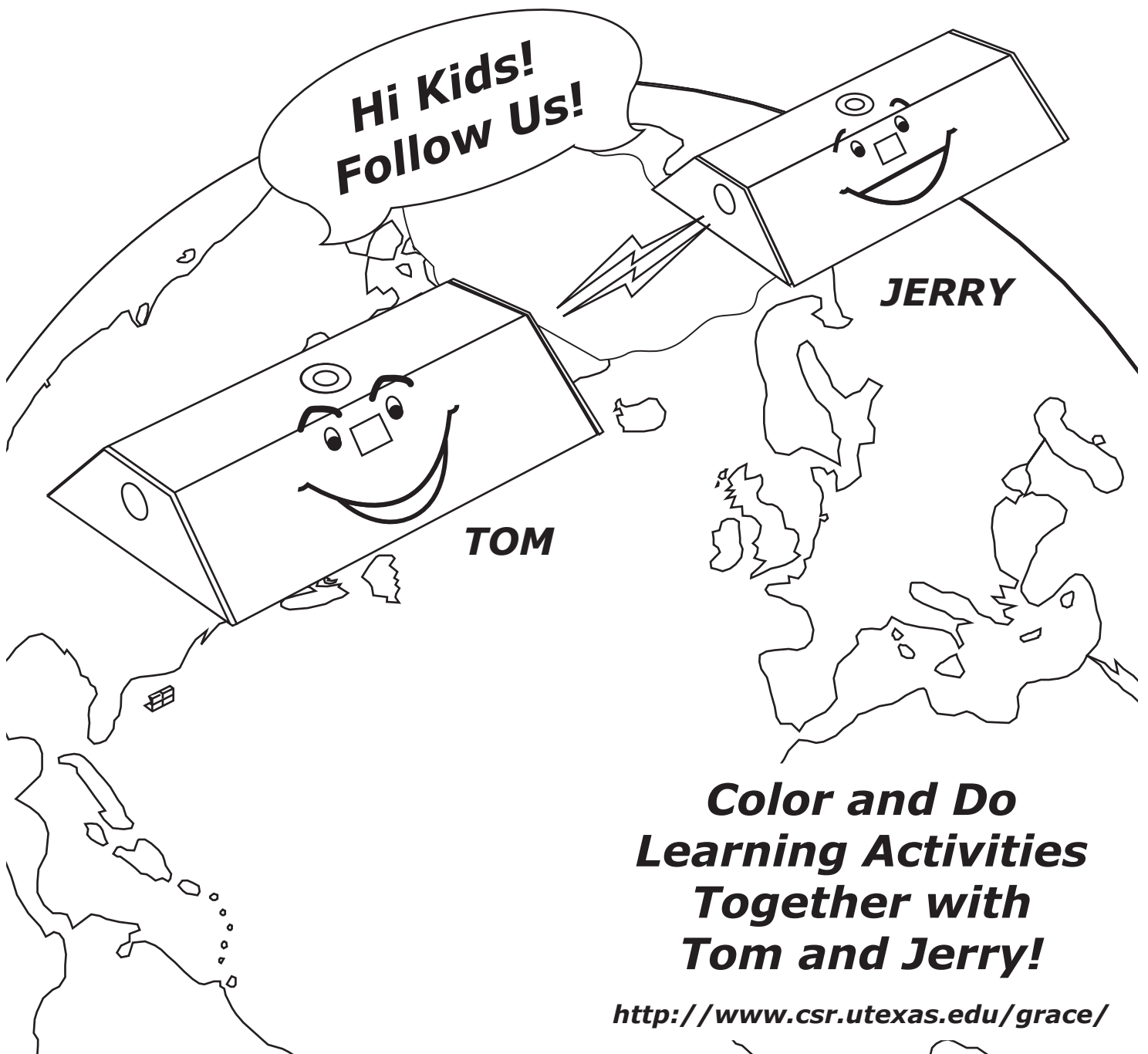
TOM

*Color and Do
Learning Activities
Together with
Tom and Jerry!*

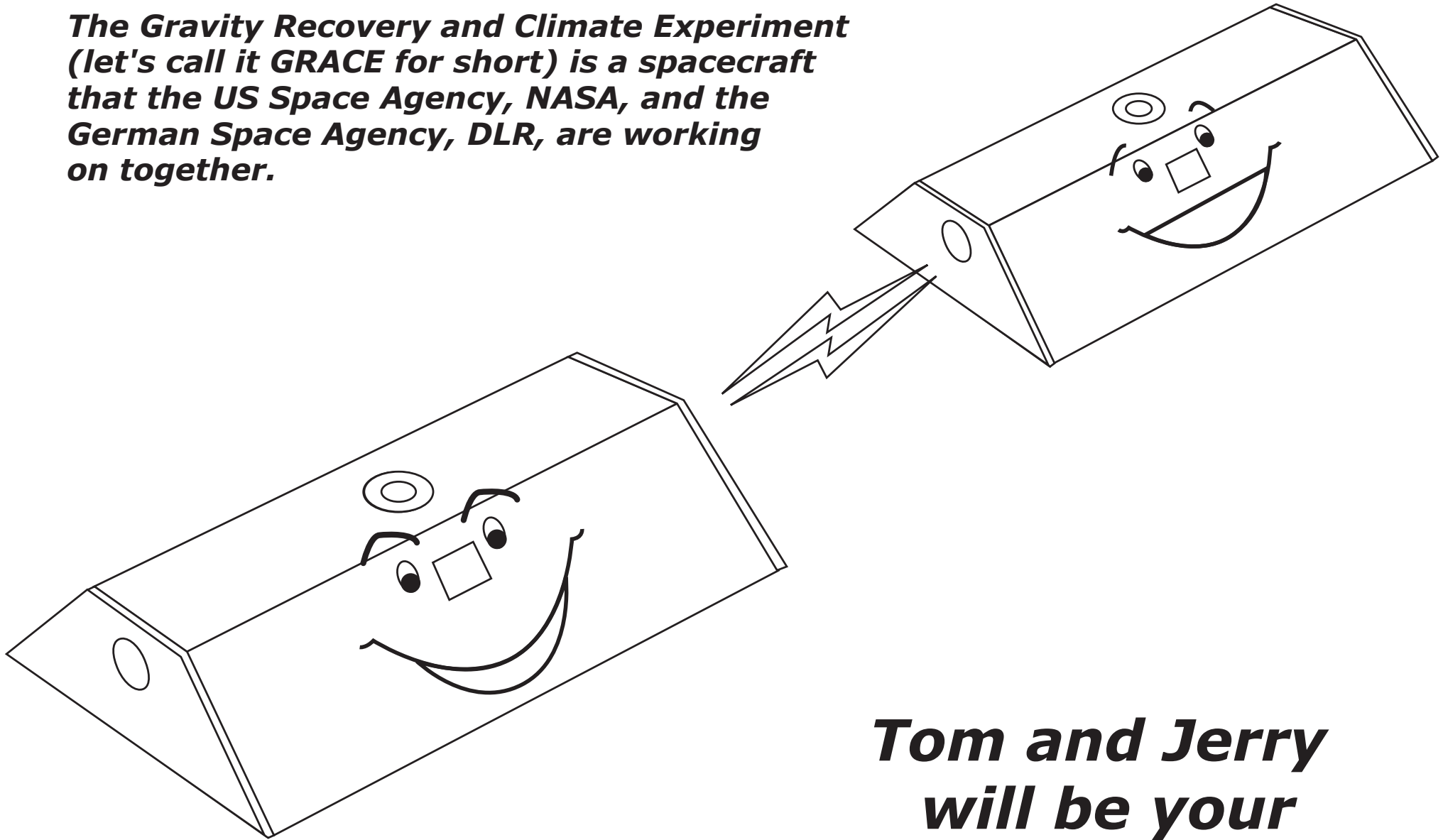
<http://www.csr.utexas.edu/grace/>

GRACE

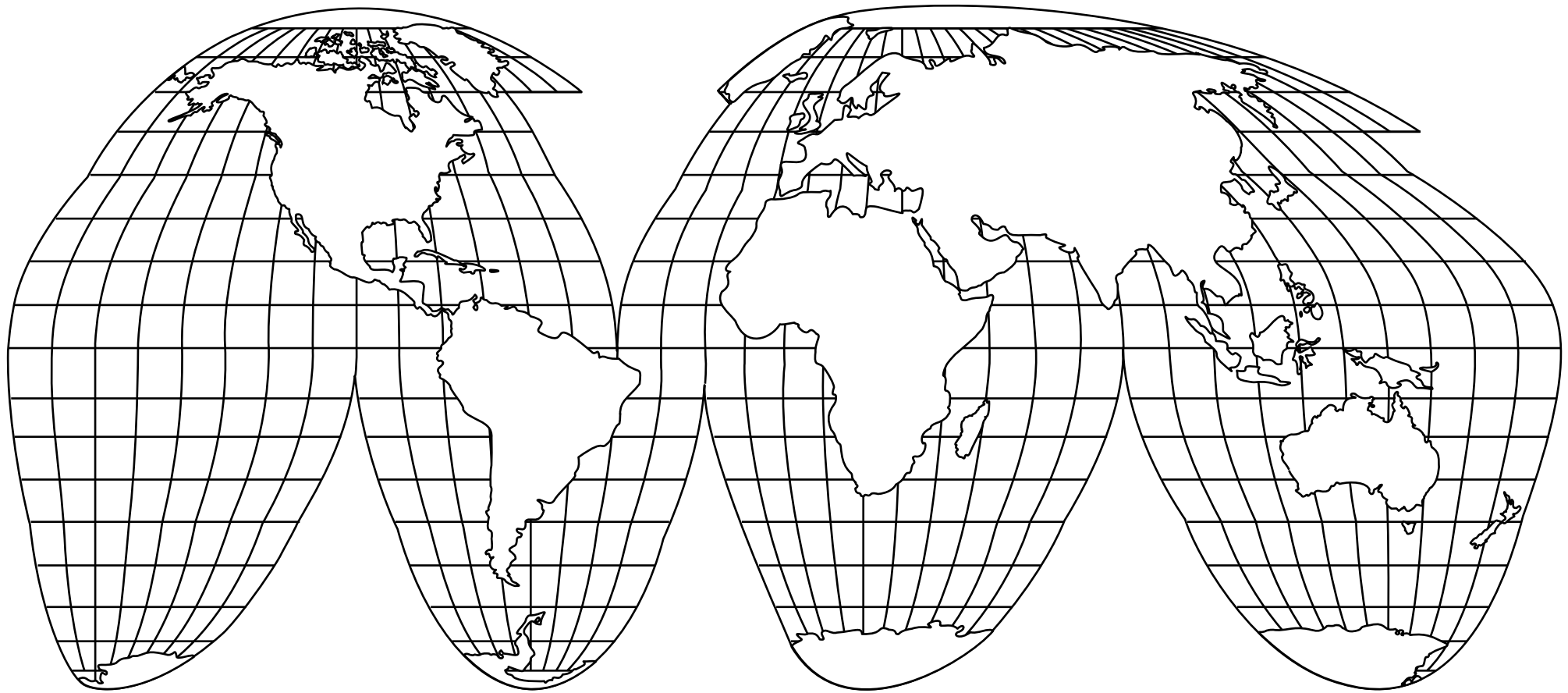
***Gravity Recovery And Climate Experiment
Coloring and Activity Book***



***The Gravity Recovery and Climate Experiment
(let's call it GRACE for short) is a spacecraft
that the US Space Agency, NASA, and the
German Space Agency, DLR, are working
on together.***



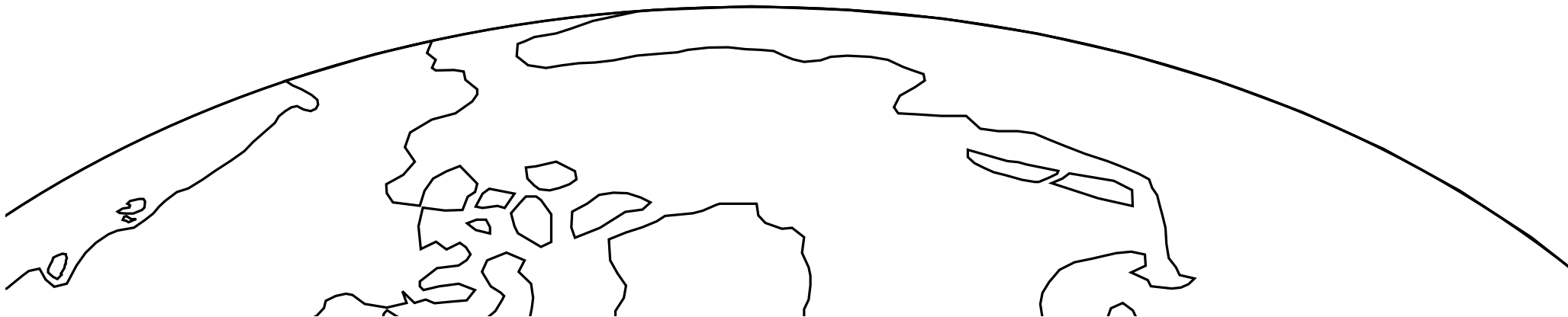
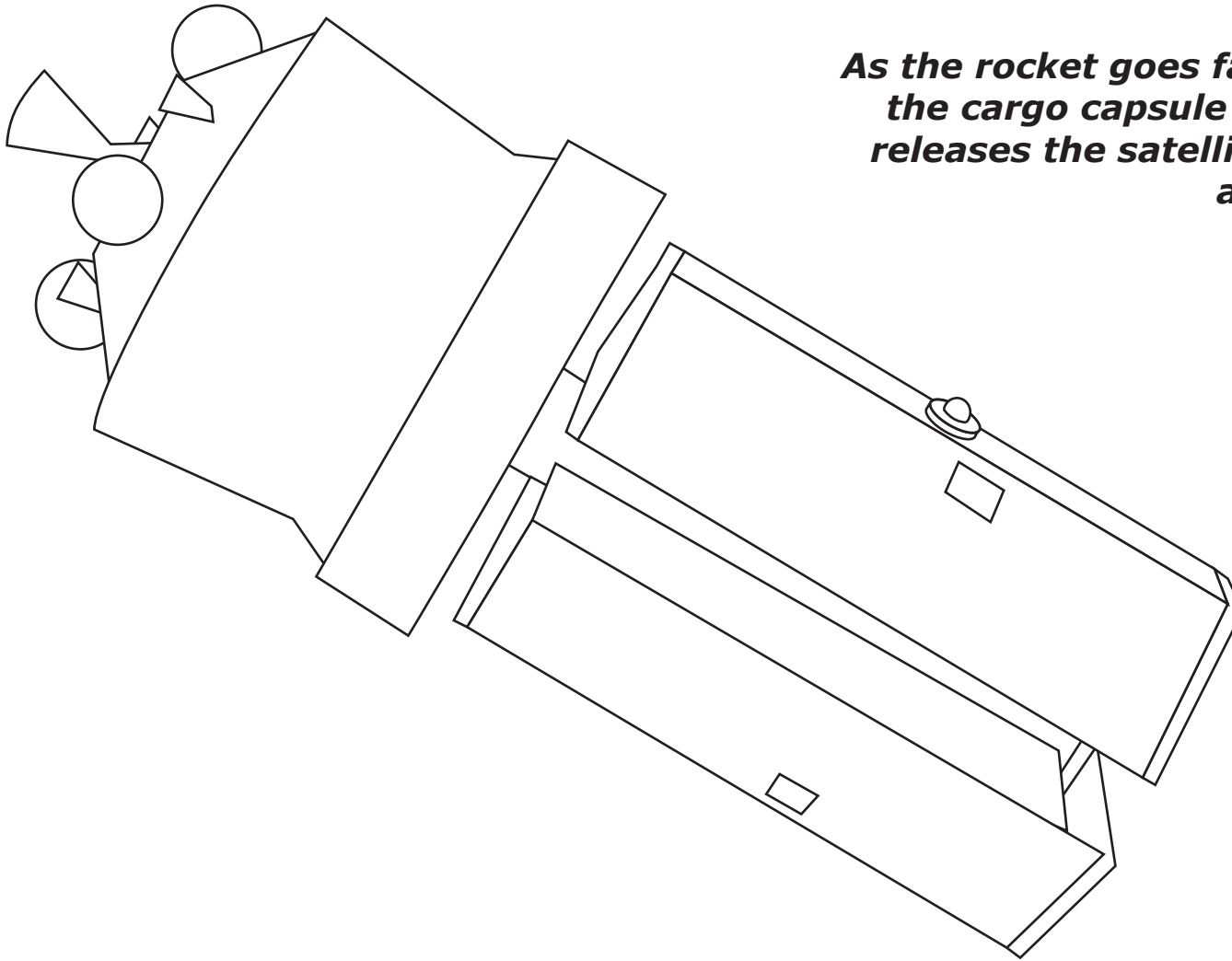
***Tom and Jerry
will be your
tour guide!***

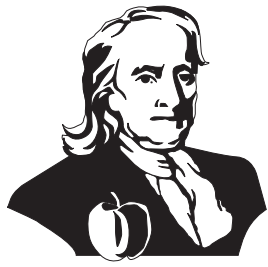


***The GRACE satellites launched on the European ROCKOT
on March 17, 2002, from Plesetsk, Russia.***

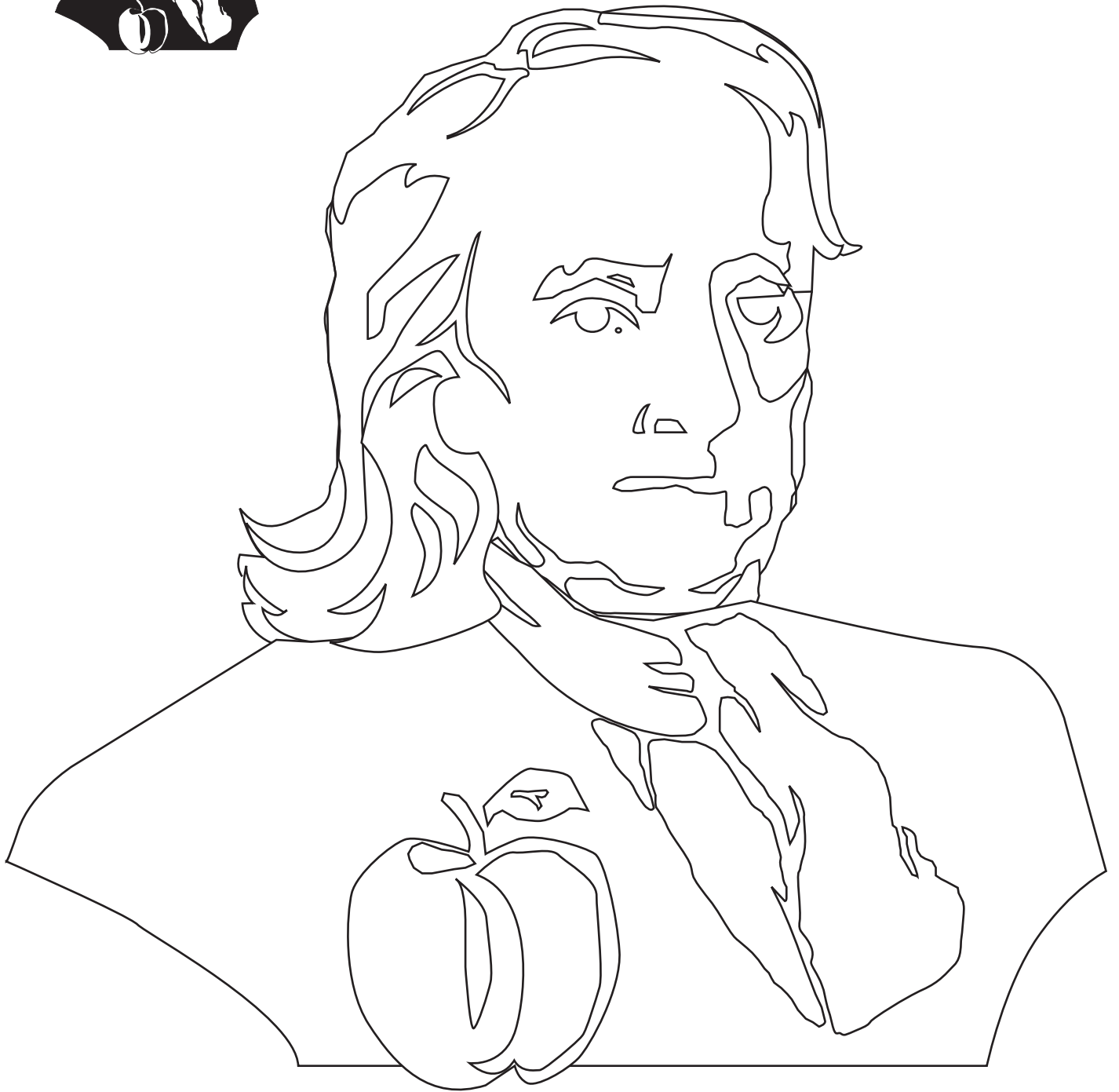
Can you find Russia on the map?

***As the rocket goes farther into space
the cargo capsule separates. This
releases the satellites into an orbit
around the Earth.***

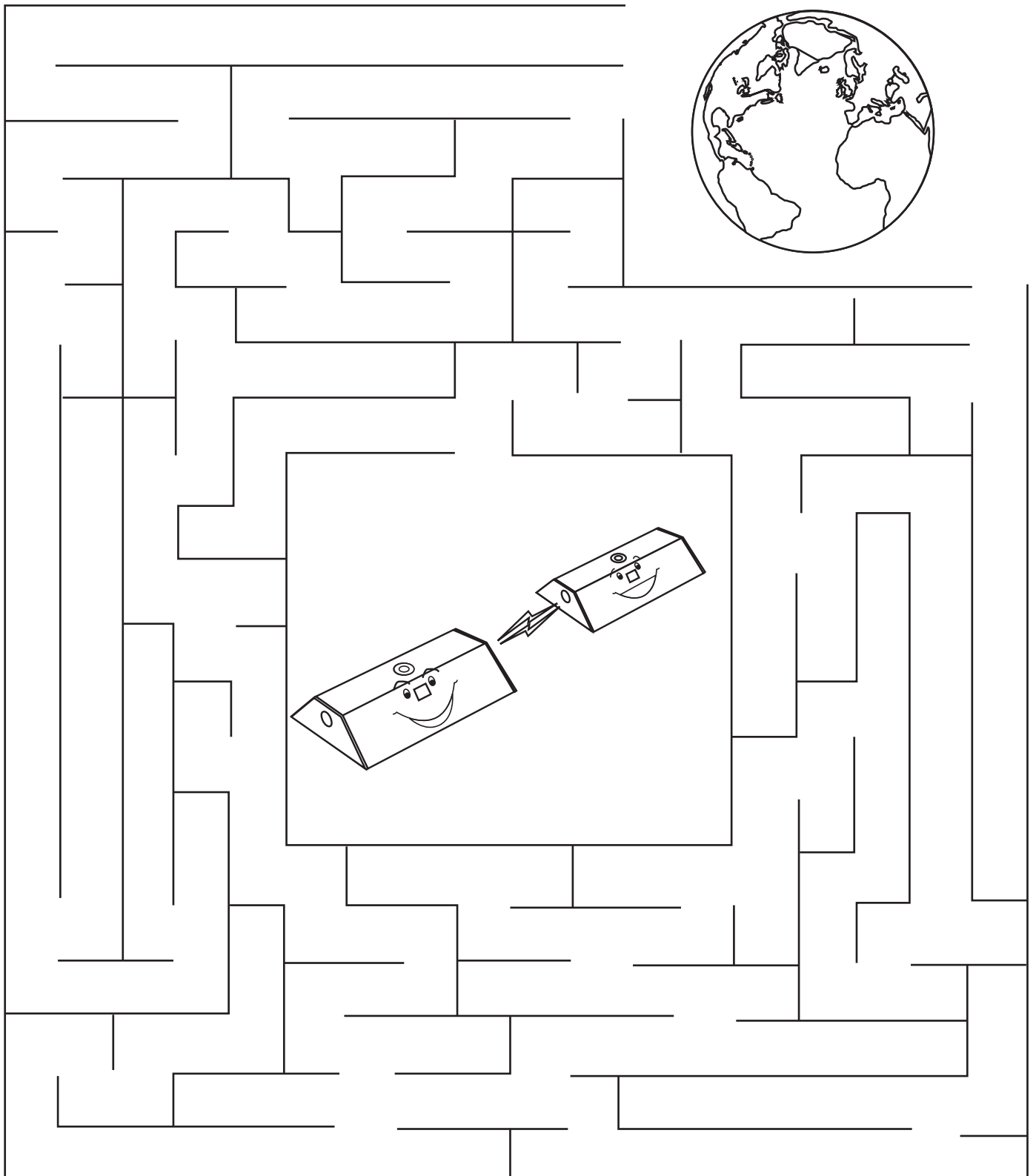




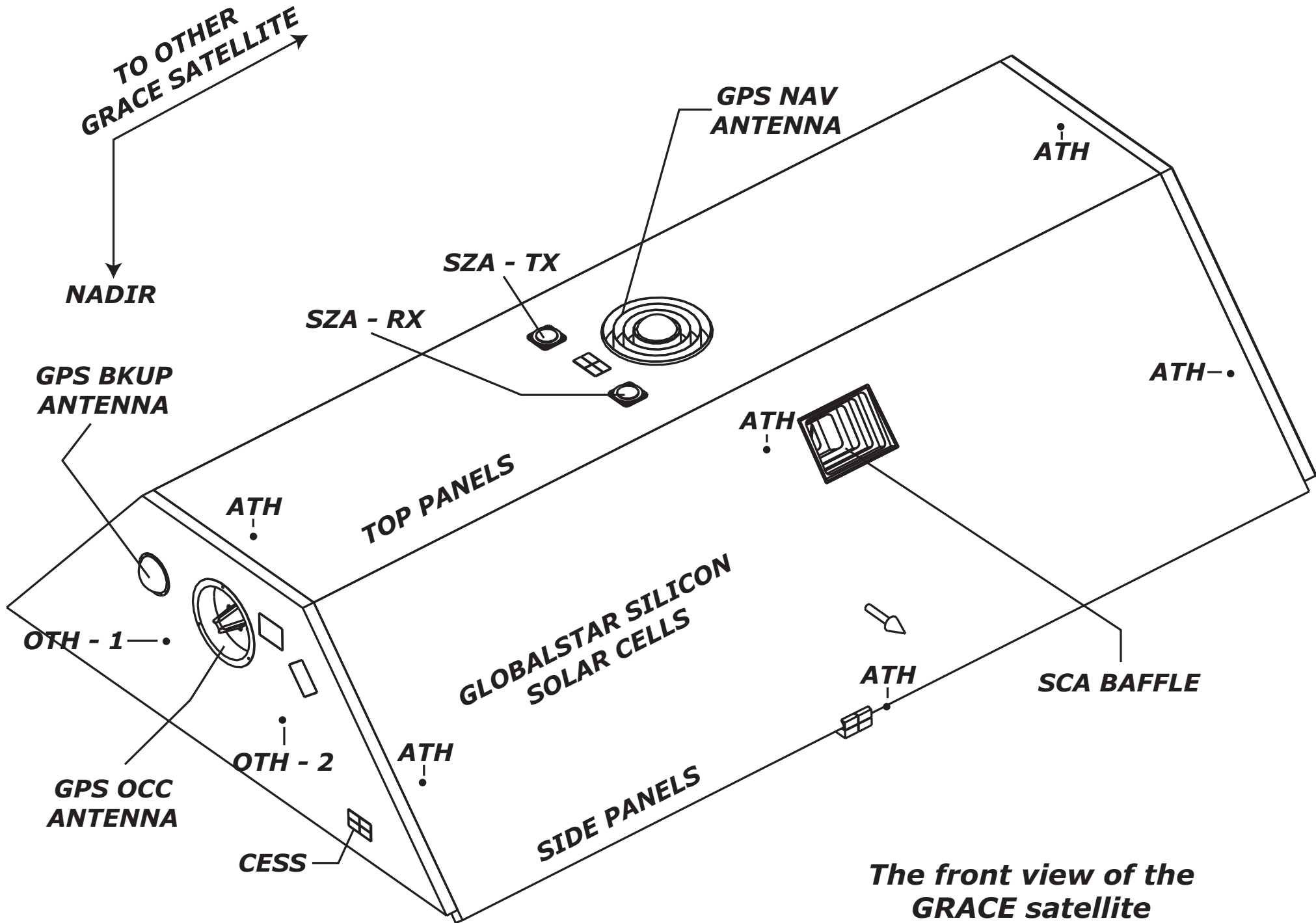
Why don't satellites fall?



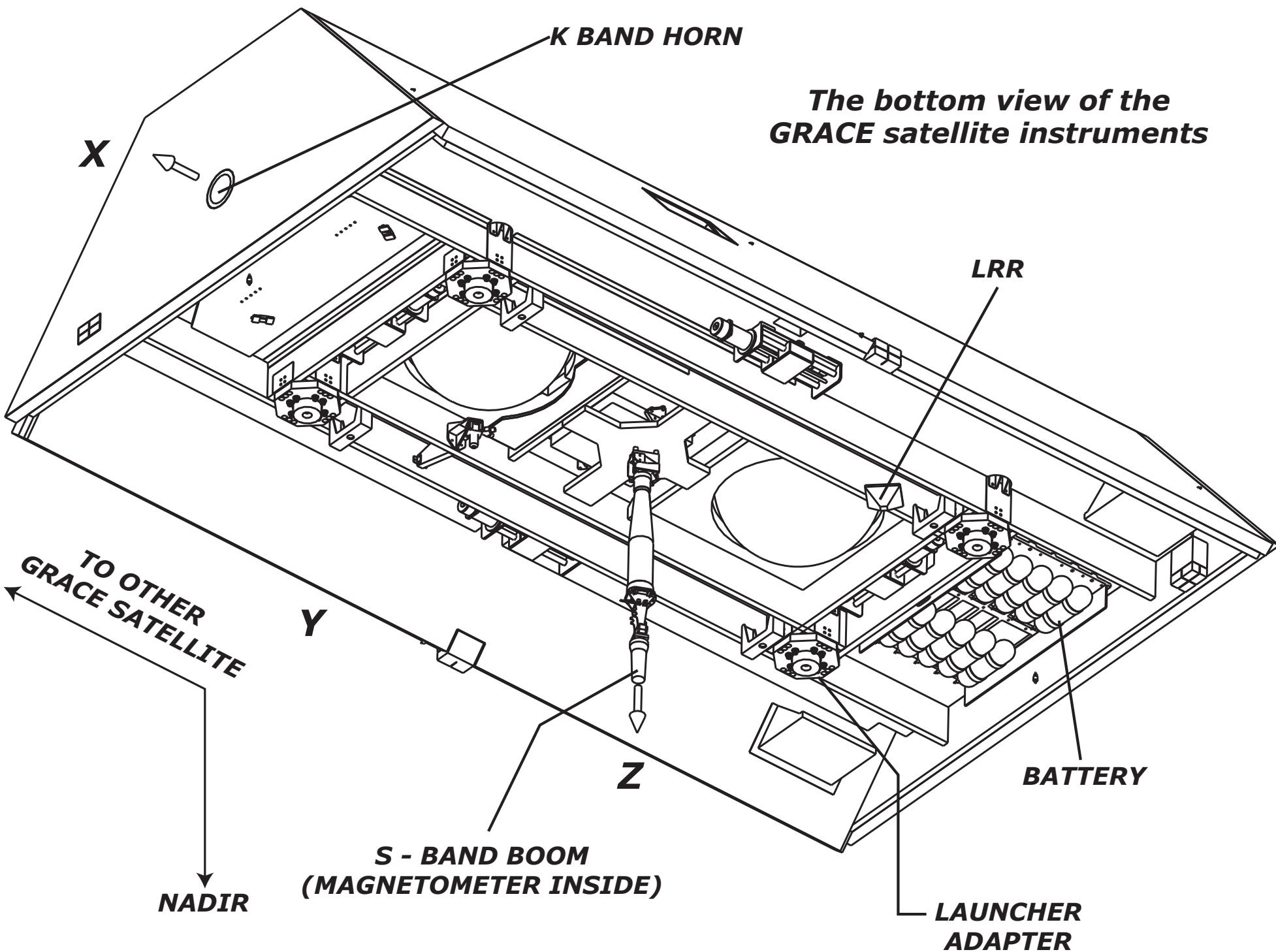
Sir Isaac Newton figured out how an object could orbit the earth. A satellite must travel at least 17,000 miles (27,000 km) per hour and be atleast 95 miles (150 km) above the Earth's surface. At this height, the atmosphere is so thin the air does not tug on the satellite and slow it below orbit speed. Once a satellite is in orbit not much power is needed to stay there.

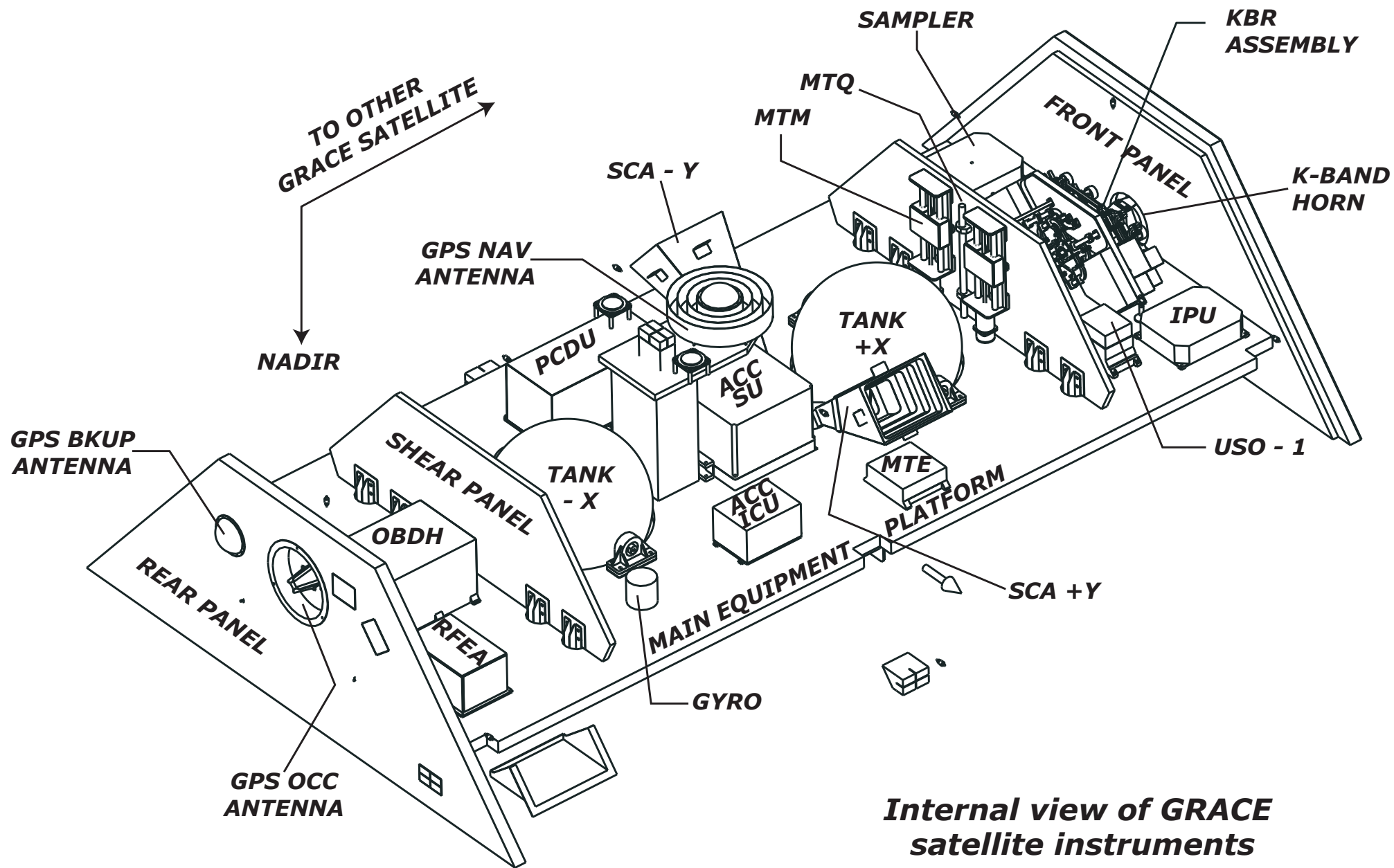


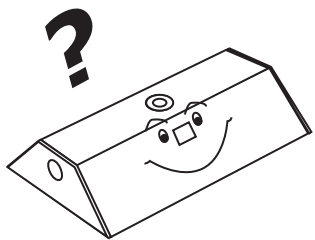
***Can you help Tom and Jerry find their way
out so they can map the Earth's gravity variations?***



The front view of the GRACE satellite







UNSCRAMBLE

Unscramble each group of letters to describe GRACE.

1. VARTGYI _____

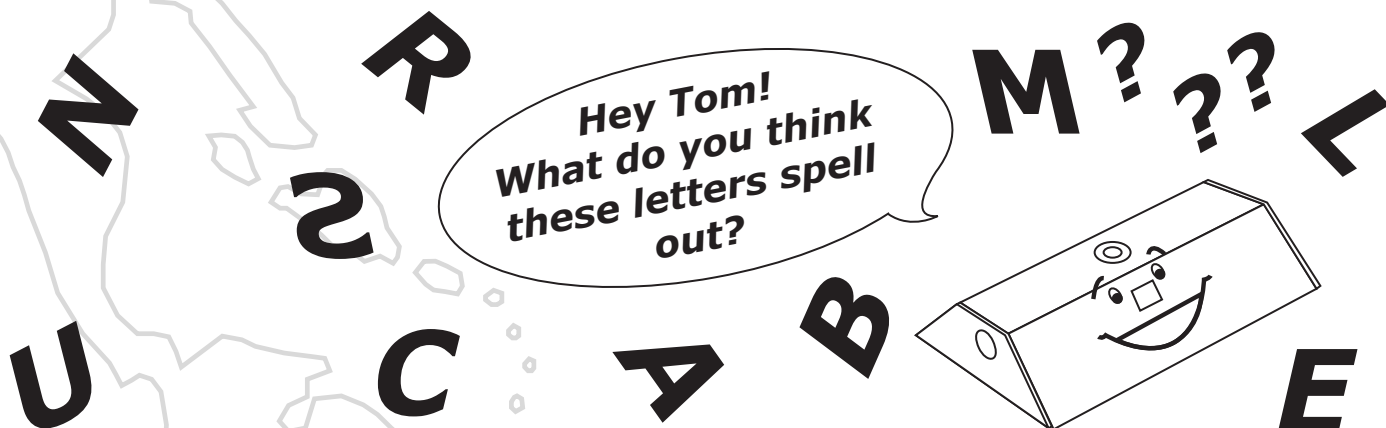
2. ALSLTAEIT _____

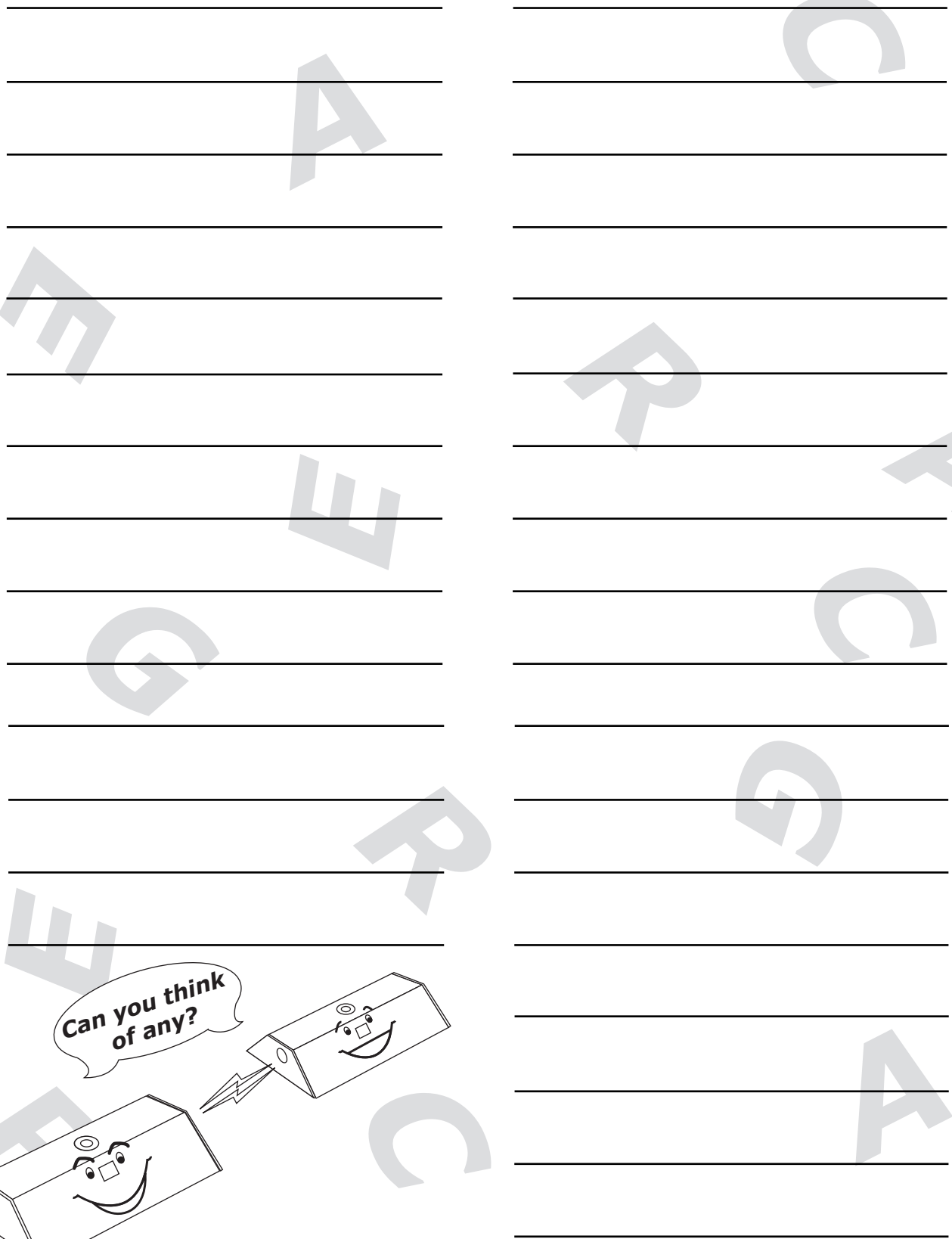
3. MEICALT _____

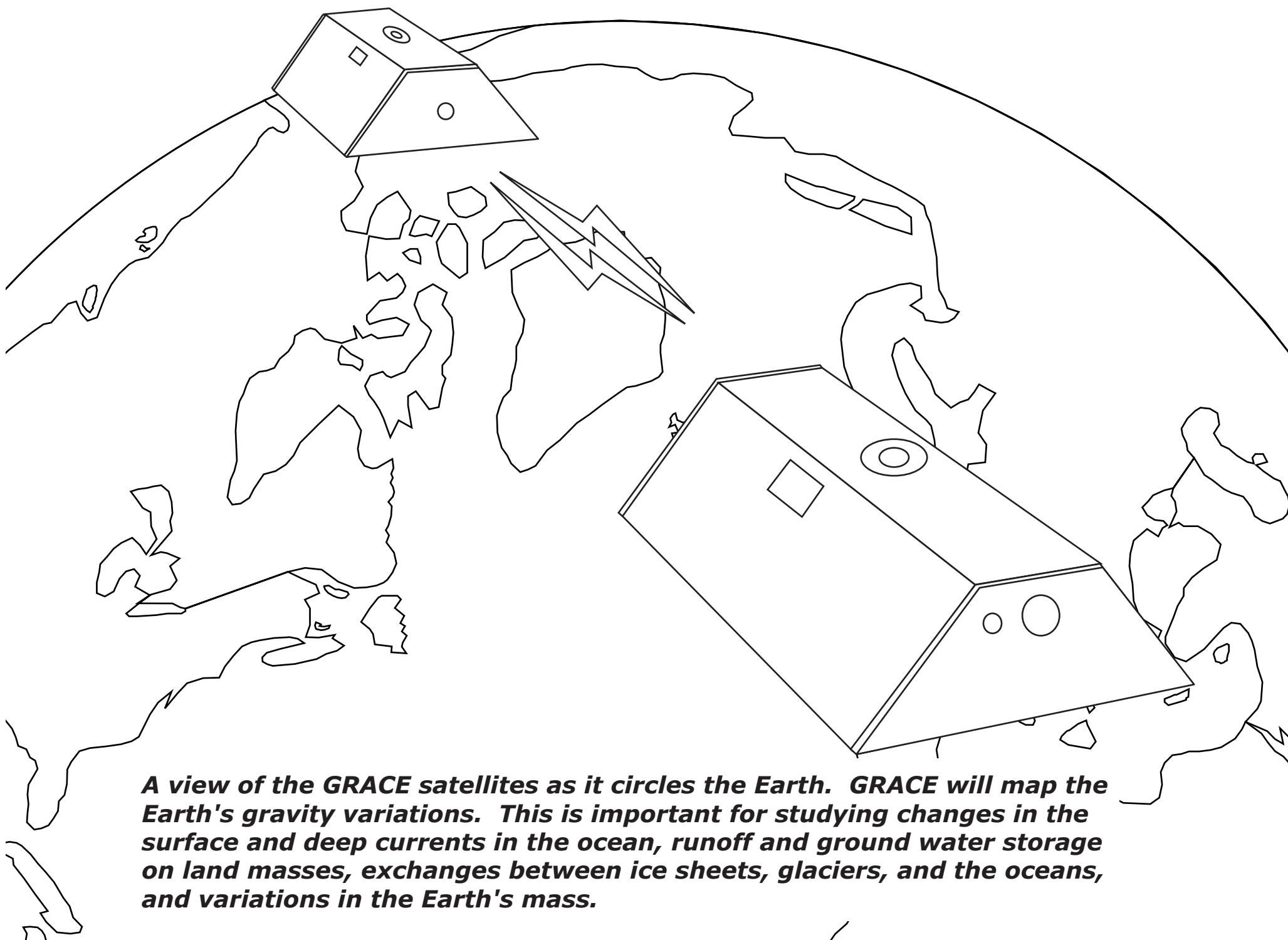
4. OPESAHMETR _____

5. TBROI _____

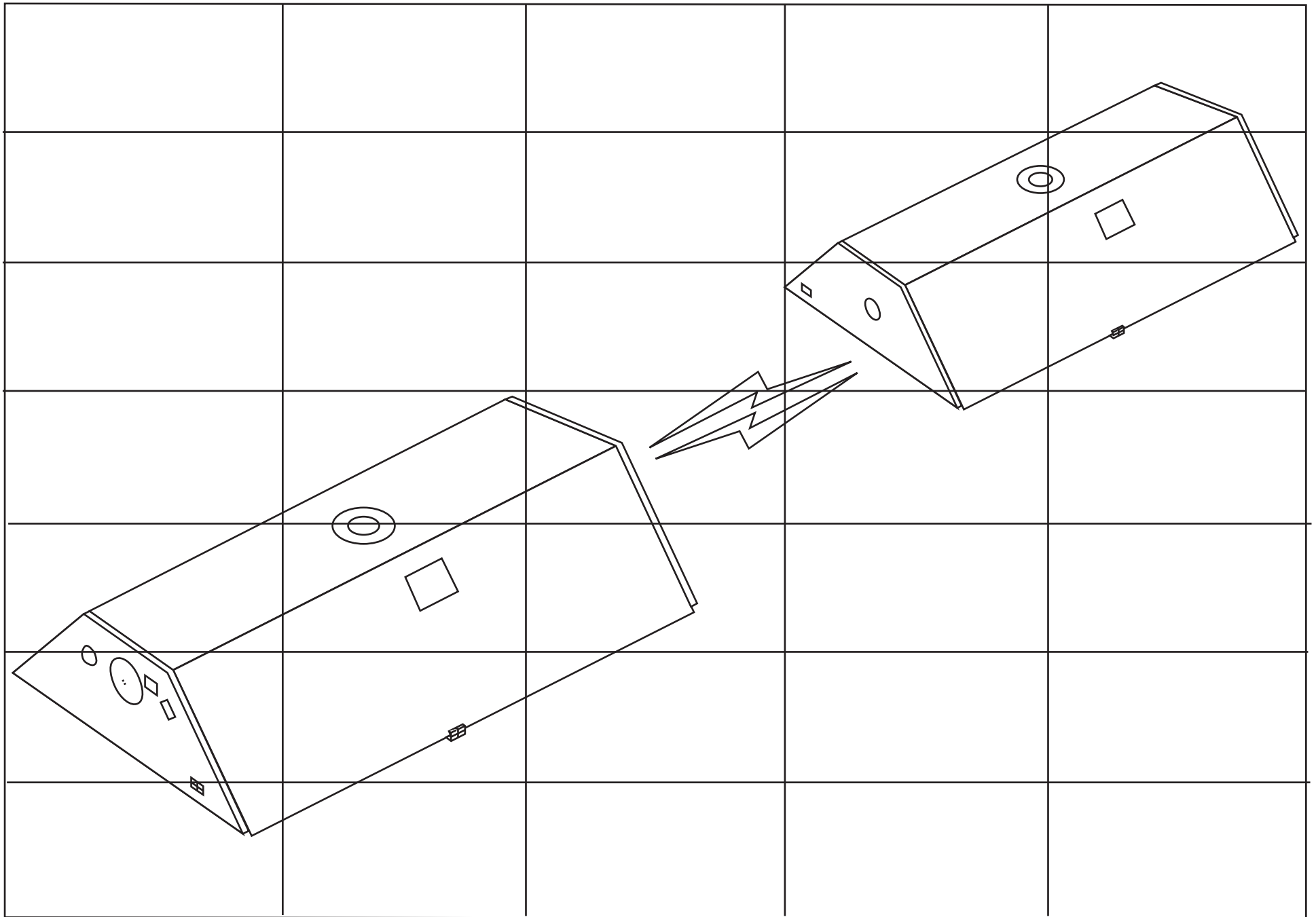
6. COEASN _____



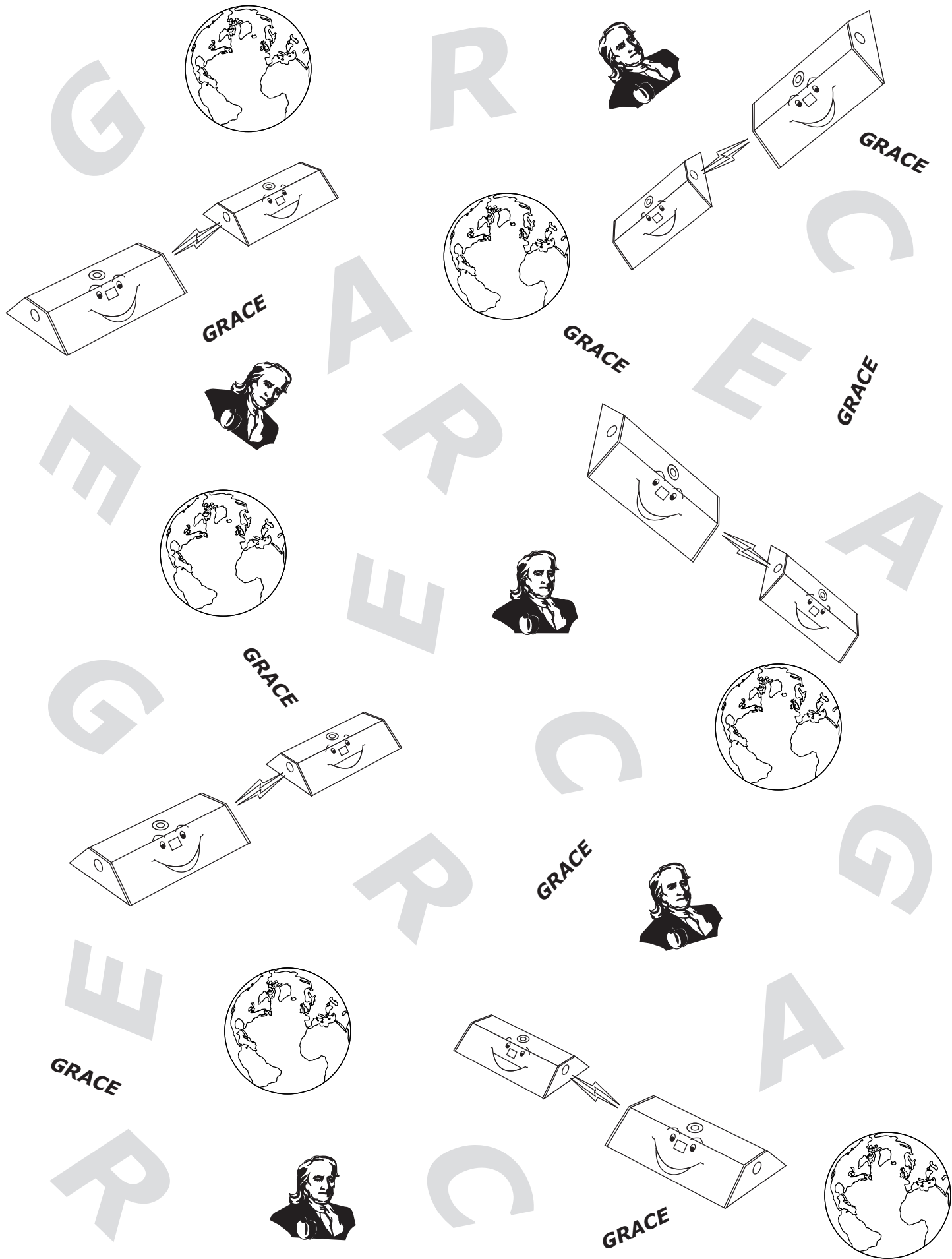
[illegible]

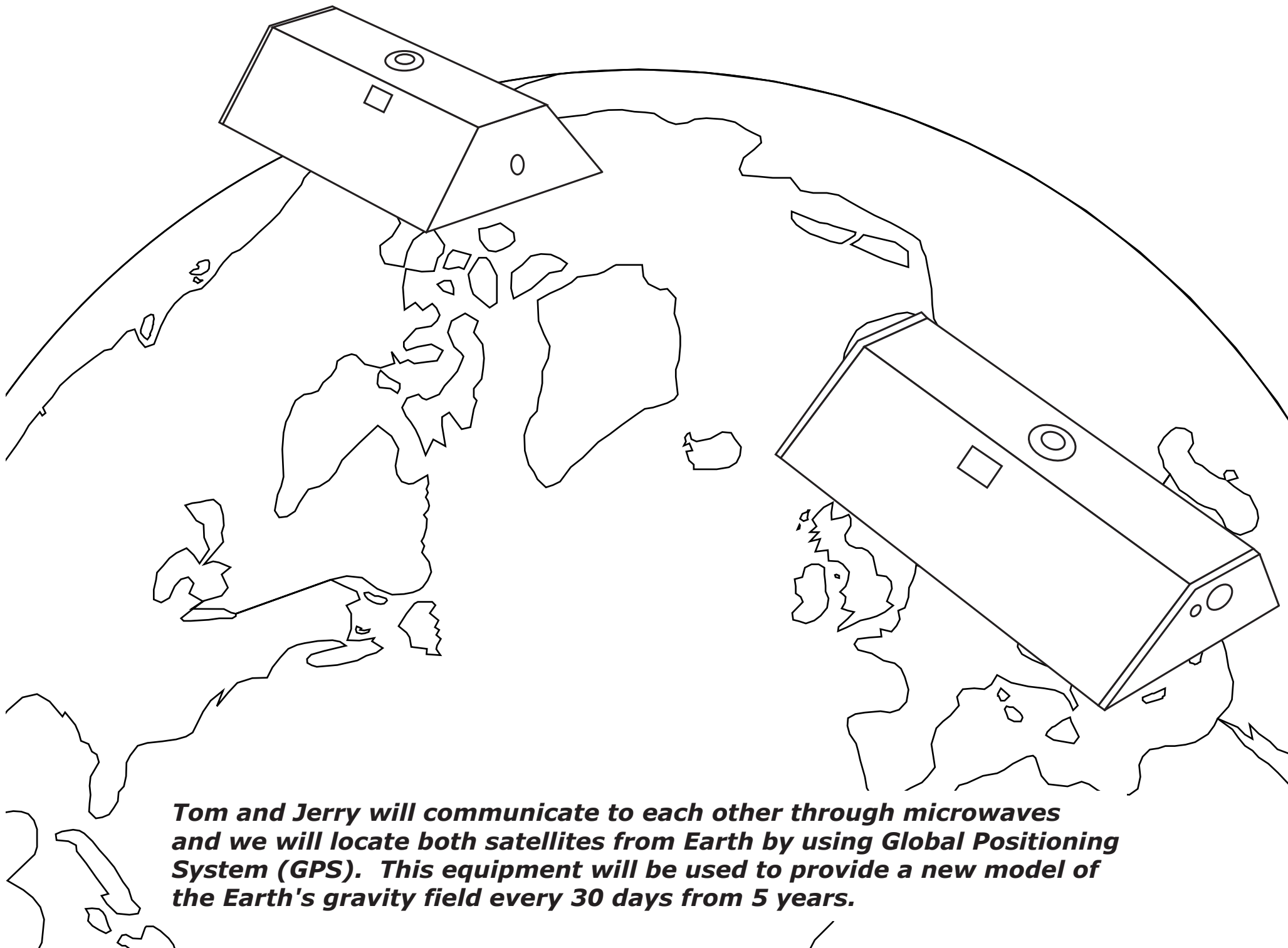


A view of the GRACE satellites as it circles the Earth. GRACE will map the Earth's gravity variations. This is important for studying changes in the surface and deep currents in the ocean, runoff and ground water storage on land masses, exchanges between ice sheets, glaciers, and the oceans, and variations in the Earth's mass.



Cut out the pieces of the GRACE Satellites and then see if you can fit them back together.





Tom and Jerry will communicate to each other through microwaves and we will locate both satellites from Earth by using Global Positioning System (GPS). This equipment will be used to provide a new model of the Earth's gravity field every 30 days from 5 years.

GRACE Wordsearch

E	Q	V	S	C	M	N	Z	N	F	H	U	F	C	O
H	R	M	S	J	Y	H	U	O	R	I	T	F	A	Y
G	C	E	G	E	T	A	M	I	L	C	E	U	R	U
T	R	N	H	R	A	Y	J	T	E	G	K	M	G	P
L	C	A	U	P	A	N	I	C	E	M	C	I	O	W
U	G	S	C	A	S	V	Q	A	E	C	O	S	J	E
M	S	W	K	E	L	O	I	R	Q	L	R	S	T	C
T	W	K	M	V	B	P	M	T	O	R	B	I	T	T
F	R	E	E	F	A	L	L	T	Y	Y	L	O	E	D
Y	Q	M	G	Y	R	Z	F	A	A	L	D	N	R	X
T	T	H	L	N	V	V	K	F	E	W	G	A	S	X
N	R	O	K	S	O	M	M	T	H	A	G	R	T	V
A	A	O	D	U	U	J	A	R	M	S	U	I	D	K
D	P	N	Y	D	N	S	W	W	R	D	K	K	W	E
S	H	B	P	W	X	C	V	H	P	N	L	B	P	U

ATMOSPHERE
CLIMATE
GRACE
MAGNET
PAYLOAD

ATTRACTION
DRAG
GRAVITY
MISSION
ROCKET

CARGO
FREEFALL
LAUNCH ☐
ORBIT ☐
SATELLITE

***How many times can you find the word
GRAVITY in this puzzle?***

Y	T	I	V	A	R	G	R	A	V	I	T	Y
T	R	A	A	R	G	R	R	I	V	A	R	G
I	V	A	R	G	R	A	I	A	V	R	R	G
V	I	T	G	R	A	V	I	T	V	I	T	Y
A	V	G	R	A	V	I	T	Y	G	I	R	A
R	G	R	A	V	I	T	Y	A	V	I	T	Y
G	R	A	V	I	T	Y	Y	Y	G	Y	Y	Y
R	A	V	I	T	Y	T	T	T	R	T	T	T
A	V	I	T	Y	R	I	I	I	A	I	I	I
V	I	T	Y	A	R	V	V	V	V	V	V	V
I	T	Y	R	A	T	A	A	A	I	A	A	A
T	Y	A	G	I	R	R	R	R	T	R	R	R
Y	T	I	V	A	R	G	G	G	Y	G	G	G

1 UACLNH_____

2 KOOTR_____

3 HEWARTE_____

4 SMSA_____

5 OPLRA_____

6 SIINMOS_____

UNSCRAMBLE

**THE
WORDS**

GRACE In Space

***H A W A T I G I Y D N Q T H E
S G U E M E P S T J O X U Y M
O K X S R O E K I U I C E L I
T A W M X T M K V T S A O P K
S N A O A W S H A E S W R A K
Z N E M B T V B R T I W L B R
Y H I R E I T R G I M N J B Z
X L G S R J E G T L T I B R O
C L E L D U F A H L A N U L Z
S L Q W T J C T K E X C C M Q
P C Y V K K F S Y T X W I L V
D S T W K A S P P A O C L E Z
R E H C N U A L R S B Y Q P R
V F R H T A B B W P P X E F B
V U L P O Q A Q H D R P Z O H***

***CLIMATE
GERMANY
GRAVITY***

***MISSION
PLESETSK
TEXAS***

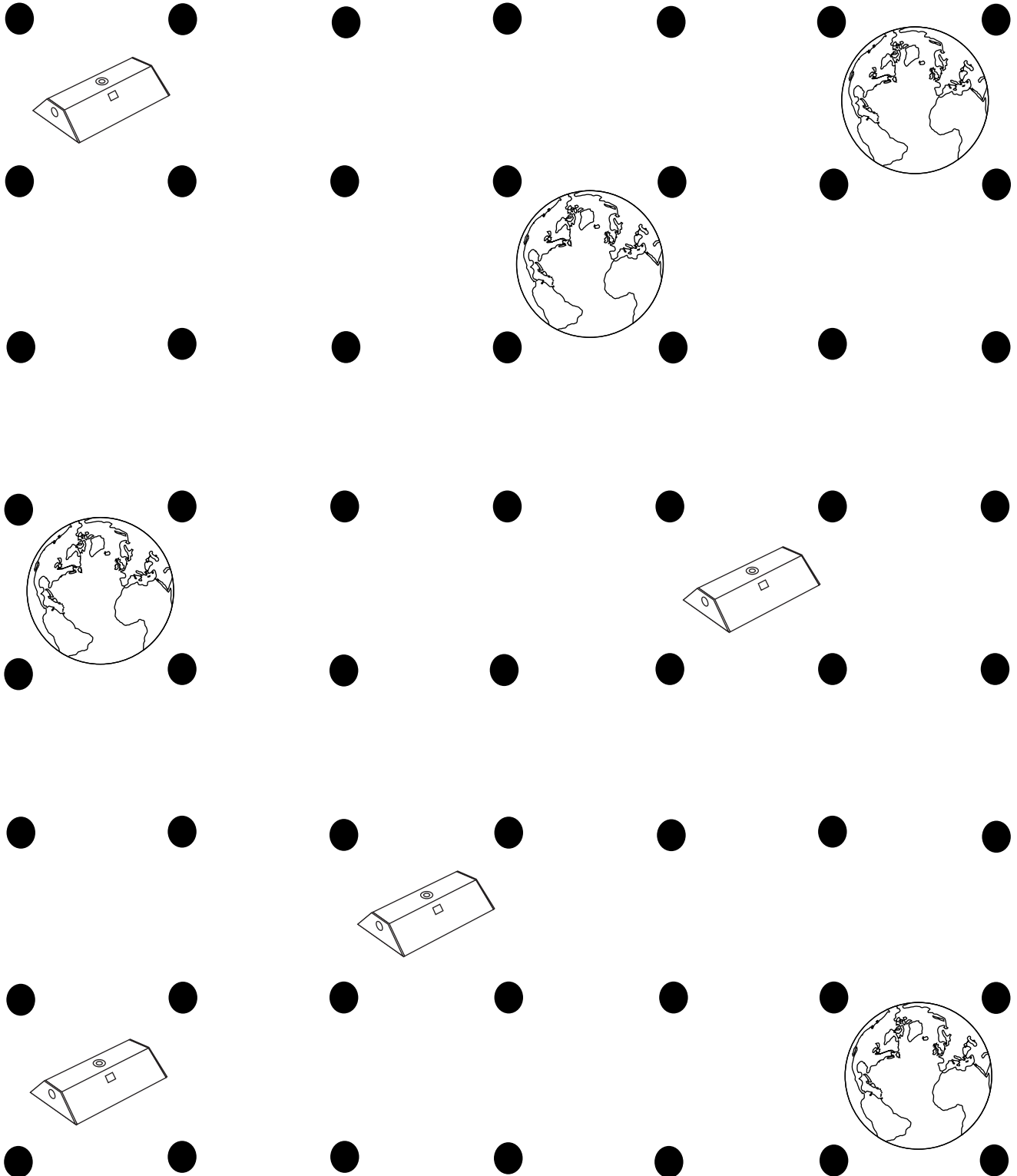
***CURRENT
GLACIER
LAUNCHER***

***ORBIT
SATELLITE***

THE DOT GAME

(A game for 2 or more players)

Take turns drawing a straight line between any two dots to make a square. When you make a square, put your initials in it and take another turn. Count 1 point for empty squares, 2 for Earth, and 3 points for squares with the GRACE satellite. When all the dots have been connected, the player with the most points wins.



GRACE Scramble

Unscramble each of the clue words. Copy the letters in the numbered cells to other cells with the same number.

RITAVGY

--	--	--	--	--	--	--

1

NUCLHA

--	--	--	--	--	--

7

LITSELTEA

--	--	--	--	--	--	--	--	--

6

12

MOSSIIN

--	--	--	--	--	--	--

TIORB

--	--	--	--	--

TRCEOK

--	--	--	--	--	--

11

5

DOLPAAY

--	--	--	--	--	--	--

9

3

10

FELREAFL

--	--	--	--	--	--	--	--

2

REHTEPMOAS

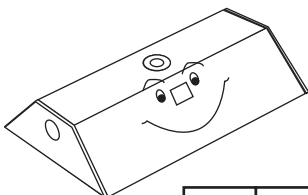
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8

CITRAANTTO

--	--	--	--	--	--	--	--	--	--

4



The Final Message:

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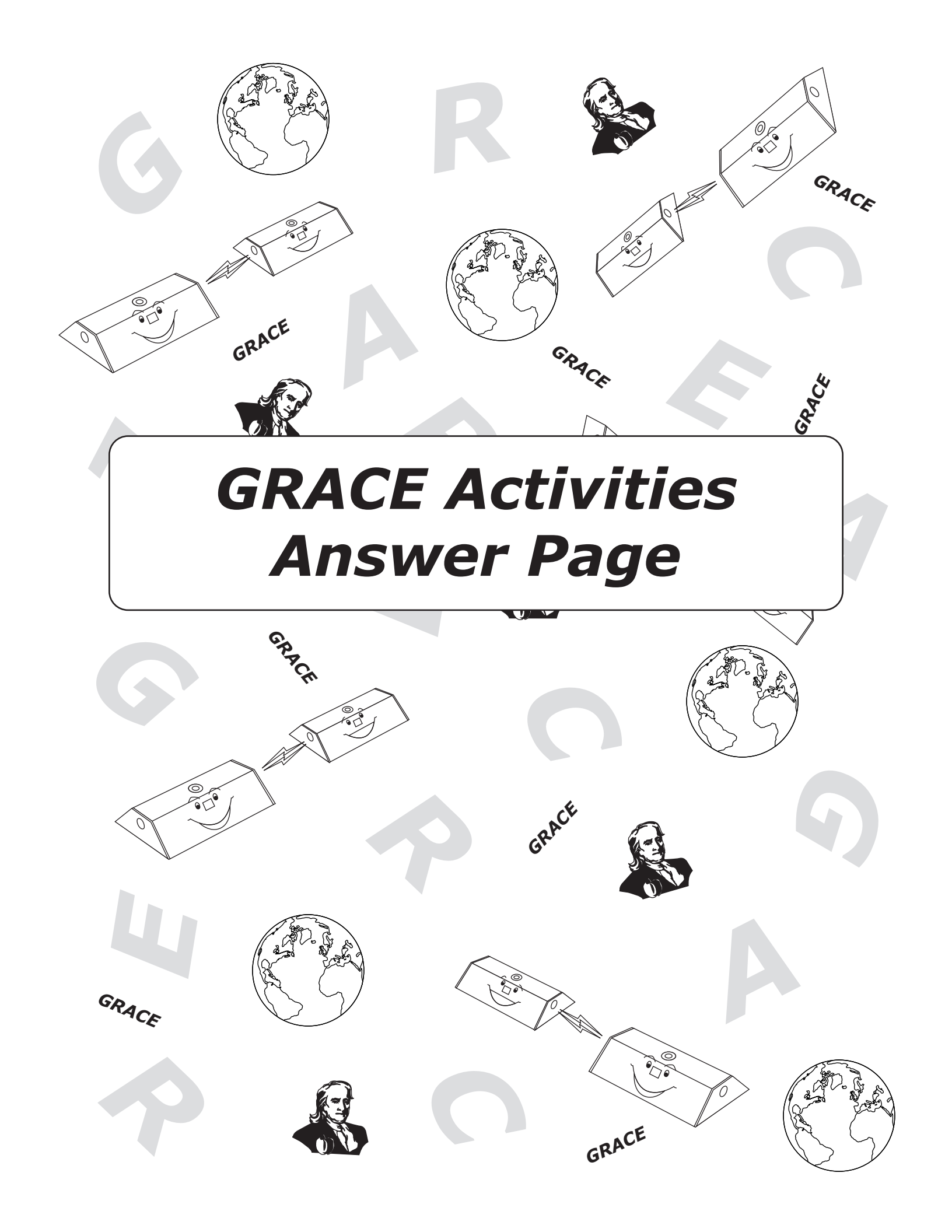
1 2 3 4 5

--	--

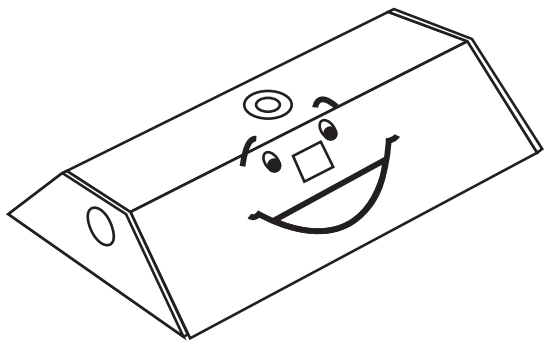
6 7

--	--	--	--	--

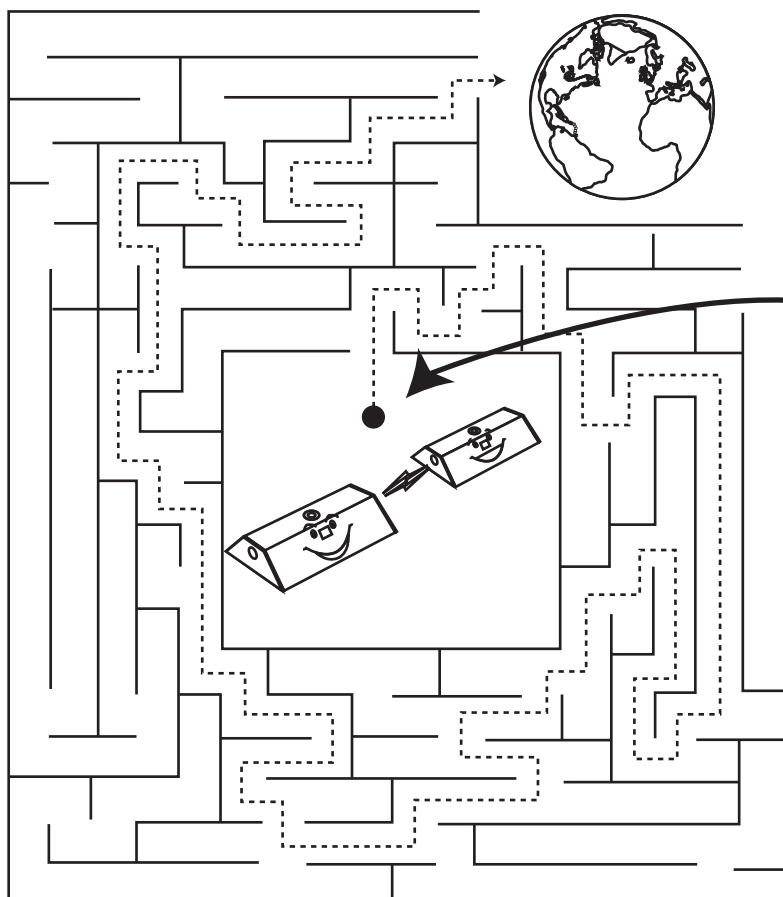
8 9 10 11 12



GRACE Activities Answer Page



**Welcome to the Activities Answer Page.
How do you think you did? Did you get
all the correct answers?**



***This is the way Tom and
Jerry find their way
to the Earth***

1. VARTGYI _____ GRAVITY

2. ALSLTAEIT _____ SATELLITE

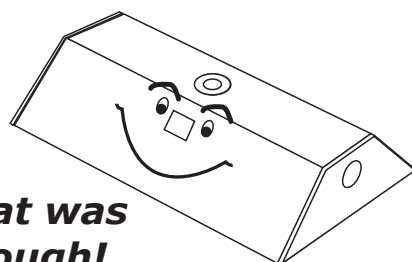
3. MEICALT _____ CLIMATE

4. OPESAHMETR _____ ATMOSPHERE

5. TBROI _____ ORBIT

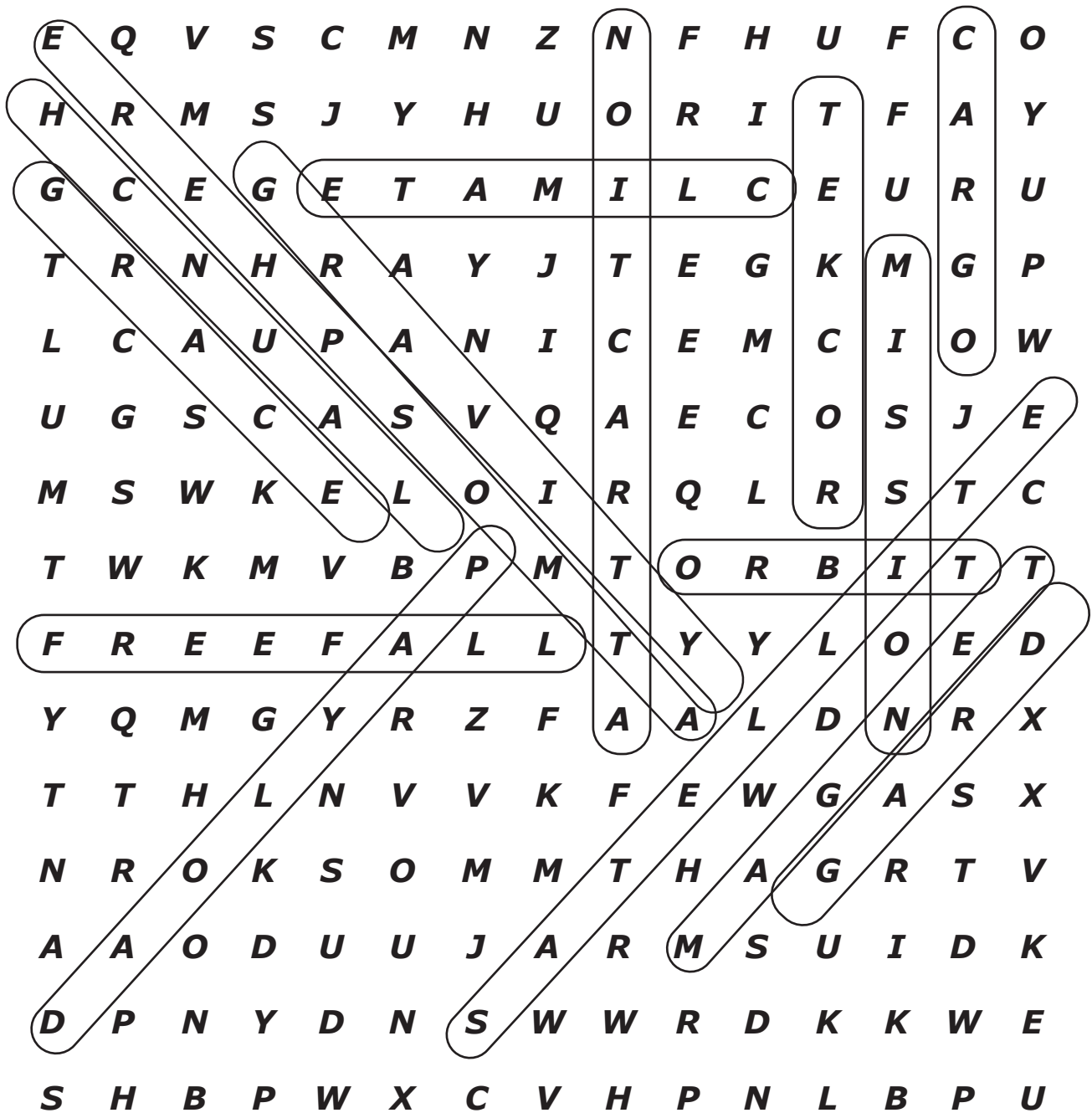
6. COEASN _____ OCEANS

**UNSCRAMBLE
ANSWERS**



***That was
tough!***

GRACE Wordsearch

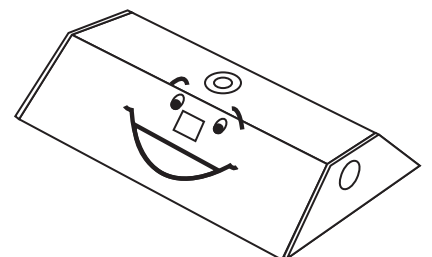


ATMOSPHERE
CLIMATE
GRACE
MAGNET
PAYLOAD

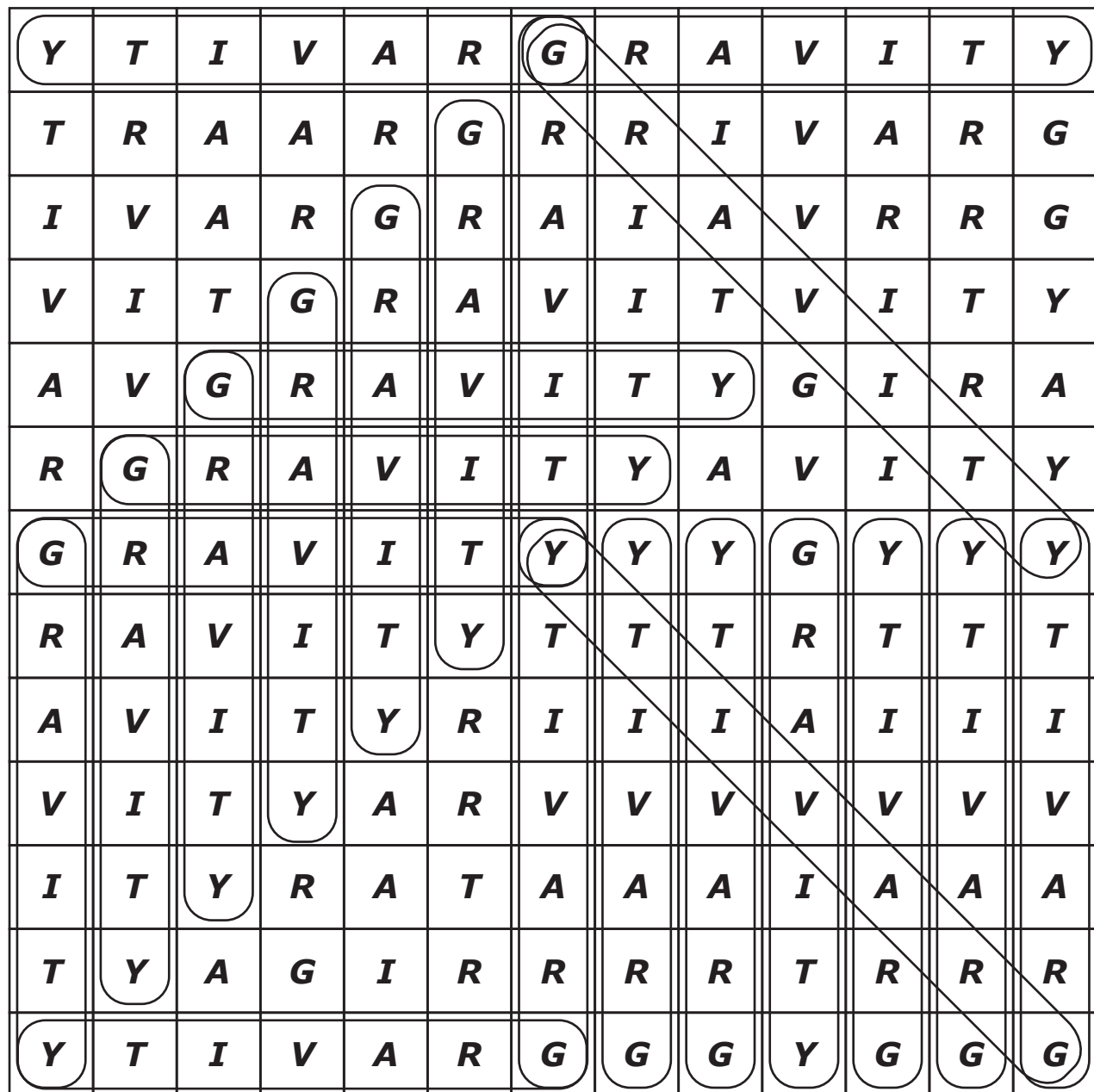
ATTRACTION
DRAG
GRAVITY
MISSION
ROCKET

CARGO
FREEFALL
LAUNCH ☐
ORBIT ☐
SATELLITE

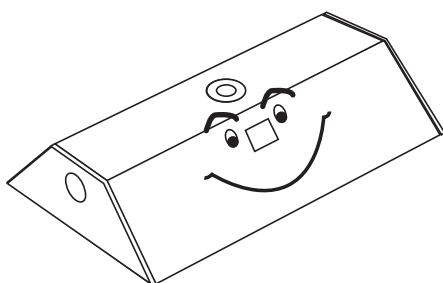
**Were you able to
 find all the words?**



**How many times can you find the word
GRAVITY in this puzzle?**

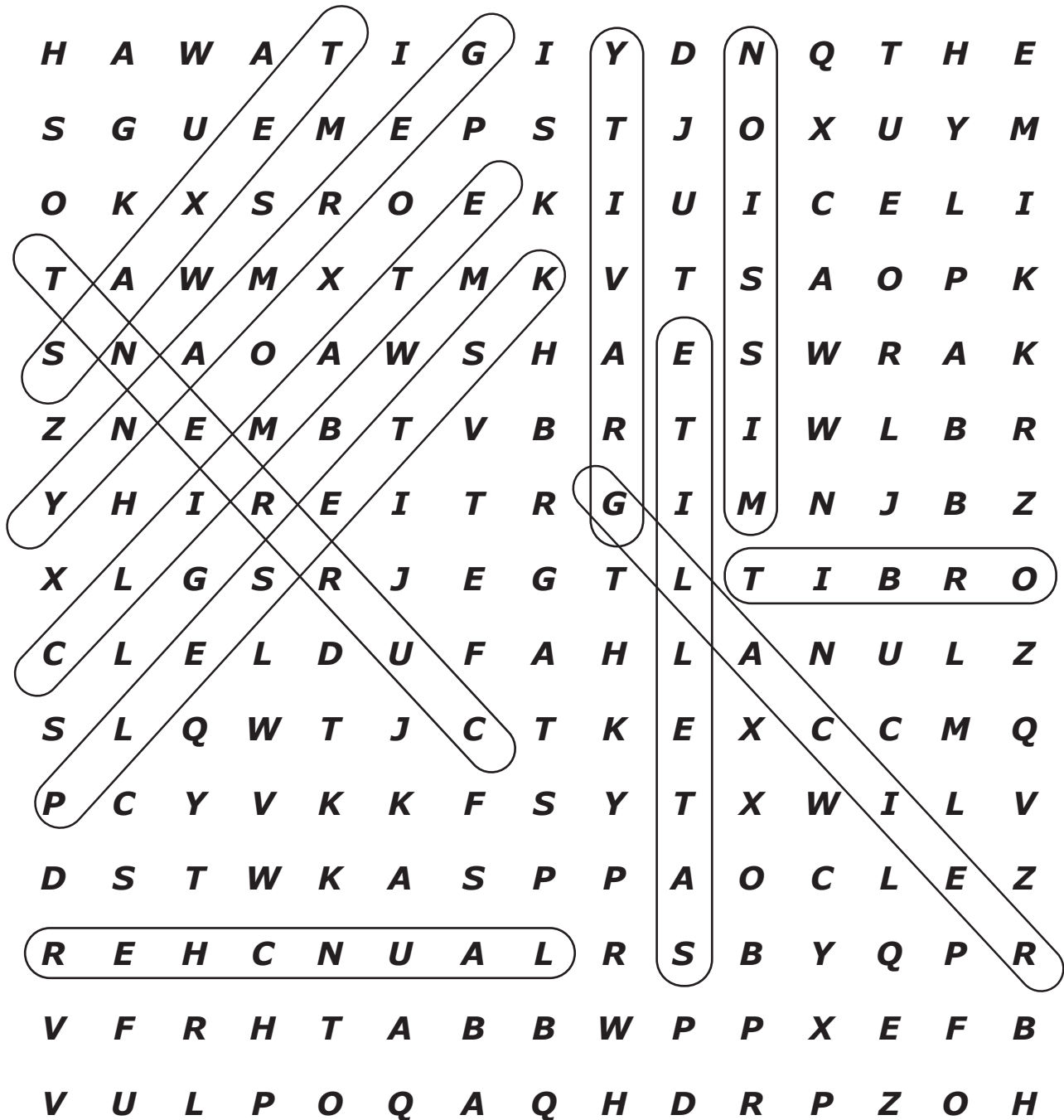


**You should have found
the word GRAVITY
22 times!**

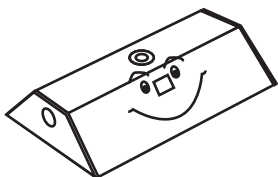


- | | |
|------------------|----------------|
| 1 UACLNH | LAUNCH |
| 2 KOOTR | ROKOT |
| 3 HEWARTE | WEATHER |
| 4 SMSA | MASS |
| 5 OPLRA | POLAR |
| 6 SIINMOS | MISSION |

GRACE In Space



**Hey Jerry,
Do you think they
found all the words?**



**CLIMATE
GERMANY
GRAVITY
MISSION
PLESETSK
TEXAS**

**CURRENT
GLACIER
LAUNCHER
ORBIT
SATELLITE**

GRACE Scramble

Unscramble each of the clue words. Copy the letters in the numbered cells to other cells with the same number.

RITAVGY

G	R	A	V	I	T	Y
---	---	---	---	---	---	---

1

NUCLHA

L	A	U	N	C	H
---	---	---	---	---	---

7

LITSELTEA

S	A	T	E	L	L	I	T	E
---	---	---	---	---	---	---	---	---

6

12

MOSSIIN

M	I	S	S	I	O	N
---	---	---	---	---	---	---

TIORB

O	R	B	I	T
---	---	---	---	---

TRCEOK

R	O	C	K	E	T
---	---	---	---	---	---

11

5

DOLPAAY

P	A	Y	L	O	A	D
---	---	---	---	---	---	---

9

3

10

FELREAFL

F	R	E	E	F	A	L	L
---	---	---	---	---	---	---	---

2

REHTEPMOAS

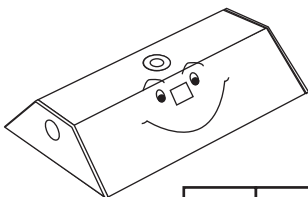
A	T	M	O	S	P	H	E	R	E
---	---	---	---	---	---	---	---	---	---

8

CITRAANTTO

A	T	T	R	A	C	T	I	O	N
---	---	---	---	---	---	---	---	---	---

4



The Final Message:

G	R	A	C	E
---	---	---	---	---

1 2 3 4 5

I	N
---	---

6 7

S	P	A	C	E
---	---	---	---	---

8 9 10 11 12

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