

## Saturn moon could support life

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Scientists are always excited to find new places in the Solar System where alien life could exist. The first thing they usually look for in these places is liquid water.

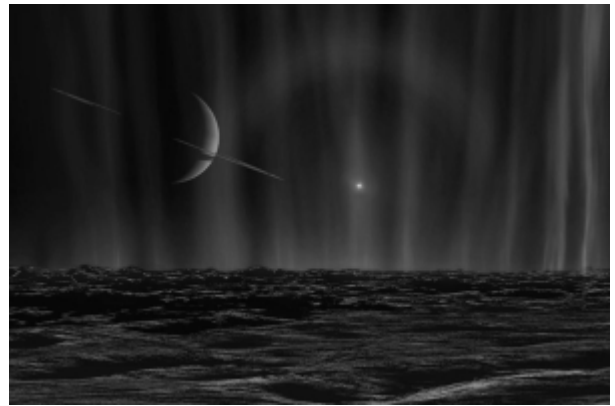
That's why scientists are now very interested in one of Saturn's many moons, called Enceladus. They believe there is a very good chance that there is an underground ocean on Enceladus, and this could be a place where life could be found.

Although scientists have suspected there could be water on Enceladus for quite some time, they recently discovered a new clue which makes the presence of water there even more likely.

The surface of Enceladus has many jets of gas which come from under the ground and shoot out into space. Scientists, using the space probe Cassini, have studied these gas jets closely and found special kinds of particles in them. The particles are believed to be a kind of ice crystal, containing something called sodium.

Sodium is a chemical that often exists in rocks. On Earth, sodium is often washed out of rocks by water. That means if there is sodium in the gases coming out of Enceladus, there is a chance there could be water under the surface.

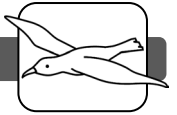
There are so many gas jets and so much sodium that scientists believe there could be a lot of water under the ground on Enceladus – perhaps even whole oceans of it!



Listen to this news story!

[www.englishraven.com/wnk/20090702.html](http://www.englishraven.com/wnk/20090702.html)





# A. Reading Skills

**Word Power** – Choose 12 words you don't know (or don't know well) from the article. Write them in the list below. Then use a dictionary and write down what the words mean.

- 1.  ⇒
- 2.  ⇒
- 3.  ⇒
- 4.  ⇒
- 5.  ⇒
- 6.  ⇒

- 7.  ⇒
- 8.  ⇒
- 9.  ⇒
- 10.  ⇒
- 11.  ⇒
- 12.  ⇒

## Reading Questions

❶ This article is mainly about...

- A. Underground oceans
- B. Travelling to Saturn's moons
- C. The possibility of life on a moon
- D. Water and sodium on the Moon

❷ Where do scientists think there could be liquid water on Enceladus?

- A. On the surface
- B. Under the surface
- C. In gas jets
- D. Inside ice crystals

❸ When looking for signs of life, what do scientists usually look for first?

\_\_\_\_\_

❹ Does Saturn have only one moon?

\_\_\_\_\_

❺ What is special about the gas jets coming out of Enceladus?

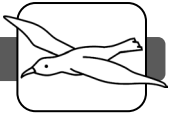
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## B. News Extra: Watching moons for signs of life



Listen to this News Extra! [www.englishraven.com/wnk/20090702.html](http://www.englishraven.com/wnk/20090702.html)



### Word help for note-taking

alien | liquid | Jupiter | Solar System  
 Mercury | rock | ice | saltwater  
 kilometre | surface evidence | oxygen  
 atmosphere | orbit | probe

### Listen and take notes:

*Enceladus...*

*Ganymede...*

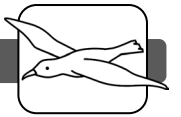
*Callisto and Europa...*

*Titan...*

### True or False?

- ① Four moons could have signs of alien life. **T / F**
- ② Three of these moons belong to Jupiter. **T / F**
- ③ Europa has oxygen in its atmosphere. **T / F**
- ④ Titan is the largest moon in the Solar System. **T / F**
- ⑤ There is no ice on Titan - just lots of rivers and lakes. **T / F**





## C. Talk Time!

### Person A

- ⇒ **Mission Control? Are you reading me? This is Enceladus Explorer. Come in.**
- B. Enceladus Explorer – this is Mission Control. We read you, but not well.
- ⇒ **Copy that. Mission Control, we have amazing news! We have successfully sent a probe down a gas jet.**
- B. Wonderful news, Enceladus Explorer! What have you discovered?
- ⇒ **You're not going to believe this! We have found an underground ocean. I repeat – an ocean! And that's not all...**
- B. Go ahead, Enceladus Explorer! What have you found? Enceladus Explorer? Are you there? Come in? Enceladus!

### Person B

- A. Mission Control? Are you reading me? This is Enceladus Explorer. Come in.
- ⇒ **Enceladus Explorer – this is Mission Control. We read you, but not well.**
- A. Copy that. Mission Control, we have amazing news! We have successfully sent a probe down a gas jet.
- ⇒ **Wonderful news, Enceladus Explorer! What have you discovered?**
- A. You're not going to believe this! We have found an underground ocean. I repeat – an ocean! And that's not all...
- ⇒ **Go ahead, Enceladus Explorer! What have you found? Enceladus Explorer? Are you there? Come in? Enceladus!**

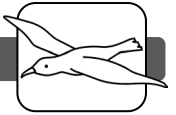
### Ask the class!

- ❶ Where am I?  
⇒ *(On a space ship), on/near Enceladus*
- ❷ Is the time now or in the imaginary future?  
⇒ *The imaginary future.*
- ❸ What have we done successfully?  
⇒ *Sent a probe down a gas jet.*
- ❹ What have we found?  
⇒ *An underground ocean plus more.*

### Ask the class!

- ❶ Who am I and where am I (probably)?  
⇒ *Mission Control, probably on Earth.*
- ❷ Can I hear Enceladus Explorer clearly?  
⇒ *No, not well.*
- ❸ How do I feel about the news?  
⇒ *Wonderful, excited, happy.*
- ❹ What happened at the end?  
⇒ *Transmission was broken/cut off.*





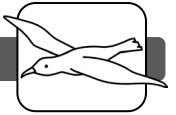
## D. Class Discussion

Questions	<b>1</b> Which planet in the Solar System would you like to visit and why?	<b>2</b> Do you believe there could be alien life in our Solar System? Why or why not?	<b>3</b> Should countries spend a lot of money on space exploration? Why or why not?
Friend 1			
Friend 2			
Friend 3			
Friend 4			







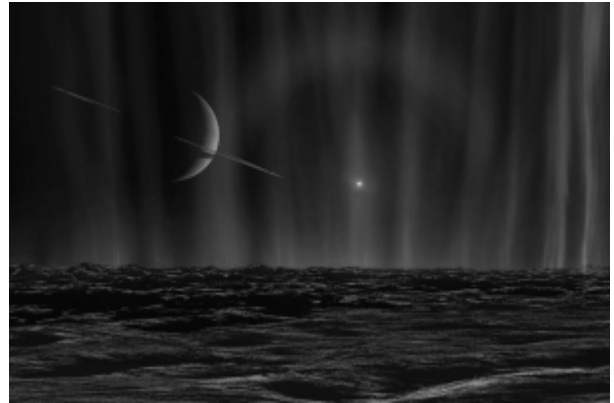


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## Teacher's Notes

For ideas on how to apply various activities with the different lesson stages, please visit:

[http://www.englishraven.com/wnk\\_teachers.html](http://www.englishraven.com/wnk_teachers.html)



Link to archive version of news page:

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## Answer Keys:

### A. Reading Skills

- ① C   ② B   ③ Liquid water   ④ No, there are many  
 ⑤ They contain ice crystals with sodium. Sodium could be washed out of rocks under the ground by liquid water.

### B. News Extra: Watching moons for signs of life

#### Listening script:

*Enceladus has become the fifth moon in the Solar System where scientists are hopeful of finding signs of alien life. This is because the chance of liquid water being found there appears to be high.*

*The other four moons are Ganymede, Titan, Callisto and Europa.*

*Ganymede is one of Jupiter's moons, and is actually the largest moon in the Solar System. It's even bigger than the planet Mercury! Ganymede is made of rock and ice, and scientists think there could be a deep, saltwater ocean about 200 kilometres below the moon's surface. They think it could be trapped between thick layers of ice.*

*Callisto and Europa are other moons around Jupiter that have a lot of ice and could have underground oceans. Scientists are particularly interested in Europa, because the evidence of water there seems to be very strong, and there is also a lot of oxygen in the moon's atmosphere.*

*Titan is a moon orbiting around Saturn and is the second biggest moon in the Solar System. A space probe landed there in 2005 and made some really exciting discoveries. In addition to lots of water ice, the probe found that there were lakes and even rivers made of different kinds of liquids. Scientists say Titan's water ice, atmosphere and surface liquids make it very similar to the way Earth looked billions of years ago. That could mean a higher chance of life existing there now or starting in the future.*

#### True or False?

- ① F   ② T   ③ T   ④ F   ⑤ F

