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Level 3

Researchers find Einstein's space waves

14th February, 2016

http://www.breakingnewsenglish.com/1602/160214-gravitational-waves.html

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Please try Levels 0, 1 and 2 (they are easier).

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THE ARTICLE

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

Scientists in the USA have seen something amazing in space for the very first time. They saw gravitational waves. These are waves that form in space and travel outwards. The waves are similar to how ripples in water move outwards after you throw a stone in a lake. The gravitational waves in space start when two giant space objects hit each other. Albert Einstein first spoke about waves in space in 1916 when he made his General Theory of Relativity. One hundred years later, the researchers have proved that Einstein's theory was right. The researchers used powerful technology to see the gravitational waves. Einstein did not have this technology. He used his genius to predict that the waves existed.

Scientists say the discovery of the gravitational waves is one of the most important discoveries ever. Dr Lawrence Krauss, from Arizona State University, said the discovery was as great as the invention of the telescope. He said it would let scientists see many new things in space. It would also answer many questions about our universe. Dr Krauss said: "It has opened a new window on the universe, just like the telescope." He added that: "Using gravitational waves to explore the universe will allow us to see things we could have never seen before....It will also allow us to explore objects in the universe we've never seen before." He said it was beautiful that the discovery happened 100 years after Einstein's prediction.

Sources: http://canadajournal.net/science/researchers-prove-albert-einsteins-theory-of-relativity-42835-

http://**gadgets.ndtv**.com/science/news/gravitational-waves-detection-proves-albert-einsteins-

century-old-theory-801468 https://thespacereporter.com/2016/02/gravitational-waves-detected-century-einstein-proposed/

WARM-UPS

- **1. SPACE:** Students walk around the class and talk to other students about space. Change partners often and share your findings.
- **2. CHAT:** In pairs / groups, talk about these topics or words from the article. What will the article say about them? What can you say about these words and your life?

scientists / amazing / waves / space / objects / Einstein / technology / genius / discovery / invention / telescope / universe / explore / beautiful / prediction

Have a chat about the topics you liked. Change topics and partners frequently.

3. PREDICTIONS: What are your predictions about these things? Complete this table with your partner(s). Change partners often and share what you wrote.

	50 years from now	500 years from now
Living in space		
Doctors		
World peace		
Internet		
English		
Your country		

- **4. DISCOVERIES:** Students A **strongly** believe discoveries in space are very important; Students B **strongly** believe they are not. Change partners again and talk about your conversations.
- **5. AMAZING THINGS:** Rank these with your partner. Put the best at the top. Change partners often and share your rankings.
 - volcanoes
 - the Internet
 - flowers
 - space rockets

- babies
- dolphins
- the human brain
- snow flakes

6. WAVES: Spend one minute writing down all of the different words you associate with the word "waves". Share your words with your partner(s) and talk about them. Together, put the words into different categories.

BEFORE READING / LISTENING

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

1. TRUE / FALSE: Read the headline. Guess if a-h below are true (T) or false (F).

a.	Scientists found	gravitational	waves for the second time.	T / F
----	------------------	---------------	----------------------------	-------

- b. Gravitational waves start from the outside and travel inwards. T / F
- c. Albert Einstein spoke about gravitational waves in 1916. T/F
- d. Einstein used powerful technology to measure gravitational waves. T/F
- e. A scientist said discovering the telescope was more important. T/F
- f. The discovery of gravitational waves will answer many questions.
- g. The discovery means scientists will see things never seen before. T / F
- h. The discovery of the waves came 100 years after Einstein's prediction. T/F

2. SYNONYM MATCH: Match the following synonyms from the article.

- amazing
 a. investigate
- 2. form b. showed
- 3. hit c. finding
- 4. proved d. occurred
- 5. genius e. develop
- 6. discovery f. things
- 7. let g. astonishing
- 8. explore h. brilliance
- 9. objects10. happenedi. allowj. strike

3. PHRASE MATCH: (Sometimes more than one choice is possible.)

- waves that form in space
 a. theory was right
- 2. two giant space objects b. Einstein's prediction
- 3. researchers have proved that Einstein's c. the waves existed
- 4. researchers used powerful d. to explore the universe
- 5. He used his genius to predict that6. one of the most importantf. of the telescope
- 7. the invention g. technology
- 8. Using gravitational waves h. never seen before
- 9. objects in the universe we've i. and travel outwards
- 10. 100 years after j. discoveries ever

GAP FILL

Scientists in the USA have seen something (1) in space	objects
for the very first time. They saw gravitational waves. These are	proved
waves that (2) in space and travel outwards. The waves	form
are similar to how ripples in water move (3) after you	genius
throw a stone in a lake. The gravitational waves in space start	outwards
when two giant space (4) hit each other. Albert Einstein	
first spoke about waves in space in 1916 when he (5)	amazing
his General Theory of Relativity. One hundred years later, the	powerful
researchers have (6) that Einstein's theory was right.	made
The researchers used (7) technology to see the	
gravitational waves. Einstein did not have this technology. He used	
his (8) to predict that the waves existed.	
Scientists say the (9) of the gravitational waves is one	invention
of the most important discoveries (10) Dr Lawrence	ever
Krauss, from Arizona State University, said the discovery was as	universe
great as the (11) of the telescope. He said it would let	discovery
scientists see many new things in space. It would also	ŕ
(12) many questions about our universe. Dr Krauss	objects
said: "It has opened a new window on the (13), just	answer
like the telescope." He added that: "Using gravitational waves to	prediction
(14) the universe will allow us to see things we could	explore
have never seen beforeIt will also allow us to explore	•
(15) in the universe we've never seen before." He said	
it was beautiful that the discovery happened 100 years after	
Einstein's (16)	

LISTENING – Guess the answers. Listen to check.

1)	Scientists in the USA have seen something amazing in space for the a. very fast time b. very first time c. very firstly time d. very fourth time
2)	These are waves that form in space and a. travels outwards b. travel outward c. travel outwards d. travels outward
3)	The waves are similar to how ripples in water move outwards after you throw a. a stoning in a lake b. a stoning a lake c. a stone in a lake d. a stoned in a lake
4)	One hundred years later, the researchers have proved that Einstein's a. thesis was right b. theorise was right c. theories was right d. theory was right
5)	He used his genius to predict that a. the waves exist it b. the waves existing c. the waves existence d. the waves existed
6)	the discovery of the gravitational waves is one of the most a. important discoveries ever b. important discoveries even c. important discoveries never d. important discoveries every
7)	the discovery was as great as the invention a. for the telescope b. of the telescope c. by the telescope d. at the telescope
8)	He said it would let scientists see many new a. thing in space b. things in space c. things in spaces d. thing in spaces
9)	It will also allow us to explore objects a. on the universe b. by the universe c. in the universe d. inner universe
10)	He said it was beautiful that the discovery happened 100 years a. after Einstein's prediction b. after Einstein predictions c. after Einstein's predictions d. after Einstein predictions

LISTENING — Listen and fill in the gaps

Scientists	in	the	USA	have	seen	som	ething	amazing
(1)			very	first time	. They	saw g	ravitatio	nal waves.
These are	waves	that for	m in sp	ace and	(2)			The
waves are	similar	to how	ripples i	n water n	nove o	utwards	after y	ou throw a
stone in a	a lake	. The	gravitati	onal wav	es in	space	start	when two
(3)			_ hit ea	ch other.	Albert	Einstei	n first s	poke about
waves in sp	oace in	1916 w	hen he n	nade his (Genera	l Theor	y of Rela	ativity. One
(4)			, the	researche	ers hav	/e prov	ed that	: Einstein's
theory was	right.	The res	earchers	used (5)			to see
the gravita	tional v	waves. E	instein (did not ha	ave this	s techn	ology. H	le used his
(6)			_ that th	ne waves	existed			
Scientists	say	the	discov	ery of	the	gra	vitationa	ıl waves
(7)			_ import	ant disco	veries (ever. D	r Lawrer	nce Krauss,
from A	rizona	Sta	te L	Jniversity,	, S	aid	the	discovery
(8)			_ the in	vention o	f the te	elescop	e. He sa	id it would
let scientis	ts see	many n	ew thin	gs in spa	ice. It	would	also ans	swer many
questions (9)			Dr K	rauss s	aid: "It	has ope	ened a new
window on	the u	niverse,	just lik	e the tel	escope.	." He a	added th	nat: "Using
gravitationa	al wave	s to exp	lore the	universe	(10) _			see
things we	could l	nave ne	ver seen	before	.It will	also a	llow us	to explore
objects	in	the	universe	we'v	e n	ever	seen	before."
(11)				beauti	ful	that	the	discovery
(12)			after	Einstein's	predic	tion.		

COMPREHENSION QUESTIONS

1.	Where are the scientists from?
2.	In what direction do gravitational waves travel from the centre?
3.	What things must hit each other in space for the waves to form?
4.	When did Albert Einstein first talk about the waves?
5.	What did Einstein use to predict the waves existed?
6.	In which US state does Dr Lawrence Krauss work?
7.	What invention did Dr Krauss say the discovery of the waves was like?
8.	What would the discovery of the waves answer?
9.	What things in the universe will the discovery allow us to see?
10.	How long after Einstein's prediction did scientists discover the waves?

MULTIPLE CHOICE - QUIZ

 $\textbf{From} \quad \underline{\text{http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html}}$

1.	Where are the scientists from?	6.	In which US state does Dr Lawrence Krauss work?
	a) India		a) Alaska
	b) China		b) Arizona
	c) space		c) Alabama
	d) the USA		d) Arkansas
2.	In what direction do gravitational waves travel from the centre?	7.	What invention did Dr Krauss say the discovery of the waves was like?
	a) down		a) the telegram
	b) outwards		b) the television
	c) up		c) the telegraph
	d) inwards		d) the telescope
3.	What things must hit each other in space for the waves to form?	8.	What would the discovery of the waves answer?
	a) space dust		a) questions about the universe
	b) gravity		b) the meaning of life
	c) two giant space objects		c) how black holes are formed
	d) planets		d) when the Earth began
4.	When did Albert Einstein first talk about the waves?	9.	What things in the universe will the discovery allow us to see?
	a) 1916		a) time
	b) 1910		b) aliens
	c) 1961		c) things we've never seen before
	d) 1932		d) black holes
5.	What did Einstein use to predict the waves existed?	10.	How long after Einstein's prediction did scientists discover the waves?
	a) powerful technology		a) 110 years
	b) a science book		b) 100 years
	c) his genius		c) 105 years
	d) the stars		d) 99 years

ROLE PLAY

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

Role A - Space travel

You think space travel is the most amazing thing. Tell the others three reasons why. Tell them why their things aren't as amazing. Also, tell the others which is the least amazing of these (and why): the Internet, babies or the human brain.

Role B – The Internet

You think the Internet is the most amazing thing. Tell the others three reasons why. Tell them why their things aren't as amazing. Also, tell the others which is the least amazing of these (and why): space travel, babies or the human brain.

Role C - Babies

You think babies are the most amazing things. Tell the others three reasons why. Tell them why their things aren't as amazing. Also, tell the others which is the least amazing of these (and why): the Internet, space travel or the human brain.

Role D - The human brain

You think the human brain is the most amazing thing. Tell the others three reasons why. Tell them why their things aren't as amazing. Also, tell the others which is the least amazing of these (and why): the Internet, babies or space travel.

AFTER READING / LISTENING

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

1. WORD SEARCH: Look in your dictionary / computer to find collocates, other meanings, information, synonyms ... for the words 'space' and 'wave'.

space	wave

- Share your findings with your partners.
- Make questions using the words you found.
- Ask your partner / group your questions.
- **2. ARTICLE QUESTIONS:** Look back at the article and write down some questions you would like to ask the class about the text.
 - Share your questions with other classmates / groups.
 - Ask your partner / group your questions.
- **3. GAP FILL:** In pairs / groups, compare your answers to this exercise. Check your answers. Talk about the words from the activity. Were they new, interesting, worth learning...?
- **4. VOCABULARY:** Circle any words you do not understand. In groups, pool unknown words and use dictionaries to find their meanings.
- **5. TEST EACH OTHER:** Look at the words below. With your partner, try to recall how they were used in the text:

• first	• most
• water	• great
• hit	• let
 made 	answer
• right	• before
• genius	 beautiful

SPACE SURVEY

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

Write five GOOD questions about space in the table. Do this in pairs. Each student must write the questions on his / her own paper.

When you have finished, interview other students. Write down their answers.

	STUDENT 1	STUDENT 2	STUDENT 3
Q.1.			
Q.2.			
Q.3.			
Q.4.			
Q.5.			

- Now return to your original partner and share and talk about what you found out. Change partners often.
- Make mini-presentations to other groups on your findings.

SPACE DISCUSSION

STUDENT A's QUESTIONS (Do not show these to student B)

- 1) What did you think when you read the headline?
- 2) What springs to mind when you hear the word 'space'?
- 3) How interested are you in space?
- 4) What do you think about what you read?
- 5) What have you read or seen about gravitational waves?
- 6) What do you know about Einstein?
- 7) What do you know about Einstein's General Theory of Relativity?
- 8) What do you want to know about space?
- 9) Do you think there is life on other planets?
- 10) Would you like to travel into space?

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SPACE DISCUSSION

STUDENT B's QUESTIONS (Do not show these to student A)

- 11) Did you like reading this article? Why/not?
- 12) What is the most important discovery ever?
- 13) What is the most important invention ever?
- 14) What questions are there about our universe?
- 15) Will everything in science fiction movies come true?
- 16) Would you be a good scientist?
- 17) Do you think we will find something in space we won't like?
- 18) What did you like about science at school?
- 19) What will space research be like in 100 years from now?
- 20) What questions would you like to ask the scientists?

DISCUSSION (Write your own questions)

STUDENT A's QUESTIONS (Do not show these to student B)

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	JSSION (
SCI		(Write y	your ov	vn que:	stions)
SCI	JSSION ((Write y	your ov	vn que:	stions)
CI	JSSION ((Write y	your ov	vn que:	stions)
SCI	JSSION ((Write y	your ov	vn que:	stions)
CI	JSSION ((Write y	your ov	vn que:	stions)
SCI	JSSION ((Write y	your ov	vn que:	stions)
SCI	JSSION ((Write y	your ov	vn que:	stions)

LANGUAGE - CLOZE

 $\textbf{From} \quad \underline{\text{http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html} \\$

Scie	ntists	in the USA ha	ve seer	n something (1)	in space for	or the v	ery first time
They	/ saw	gravitational	waves.	These are w	aves t	hat (2)	_ in spa	ace and trave
		The waves ar						
		stone in a lak						
spac	e (4)	hit each	other	. Albert Einste	ein firs	st spoke abo	ut wav	es in space ir
1916	5 whe	n he made his	Gener	al Theory of I	Relativ	rity. One hur	dred y	ears later, the
rese	arche	rs have (5) $_$	tha	at Einstein's t	heory	was right. 1	he res	earchers used
-		technology to		_				
tech	nolog	y. He used his	genius	(6) pre	dict th	at the waves	existe	d.
Scie	ntists	say the discov	ery of	the gravitation	nal wa	aves is one o	f the m	ost important
disc	overie	s (7) D	r Lawre	ence Krauss,	from A	Arizona State	e Unive	rsity, said the
disc	overy	was as great	(8)	the invention	on of t	he telescope	. He sa	id it would let
scie	ntists	see many ne	w thin	gs in space.	It wo	uld also ans	wer ma	any questions
abou	ut our	universe. Dr	Krauss	s said: "It ha	s opei	ned a new v	vindow	(9) the
		just like the						
-		ne universe wi		,		_		
		t will also allow						
		He said it wa	s beau	tirui that the	aisco	overy nappe	nea 10	o years artei
LIIIS	teiii s	(12)						
Put	the c	orrect words	from	the table bel	low in	the above	article	•
1.	(a)	amazing	(b)	amazes	(c)	amazed	(d)	amazement
2.	(a)	firm	(b)	frame	(c)	form	(d)	farm
3.	(a)	containers	(b)	cushions	(c)	ripples	(d)	pollen
4.	(a)	rejects	(b)	subjects	(c)	injects	(d)	objects
5.	(a)	proved	(b)	show	(c)	decision	(d)	amazed
6.	(a)	for	(b)	to	(c)	by	(d)	at
7.	(a)	never	(b)	every	(c)	even	(d)	ever
8.	(a)	was	(b)	as	(c)	is	(d)	has
9.	(a)	down	(b)	up	(c)	on	(d)	at
10.	(a)	our	(b)	we	(c)	they	(d)	us
11.	(a)	explored	(b)	exploration	(c)	exploring	(d)	explore
12.	(a)	predicts	(b)	prediction	(c)	predicted	(d)	predictive

SPELLING

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

Paragraph 1

- 1. something <u>mazgnia</u> in space
- 2. travel awuodrts
- 3. when two giant space <u>bseotcj</u> hit each other
- 4. Einstein's teoyrh was right
- 5. The researchers used powerful cteoygholn
- 6. He used his snugie

Paragraph 2

- 7. the <u>esiroyvcd</u> of the gravitational waves
- 8. as great as the <u>viienontn</u>
- 9. answer many questions about our <u>rsueiven</u>
- 10. it would let icstssetin see many new things
- 11. allow us to <u>pxeelor</u>
- 12. 100 years after Einstein's <u>ntpeidrcoi</u>

PUT THE TEXT BACK TOGETHER

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

Number these lines in the correct order.

()	1916 when he made his General Theory of Relativity. One hundred years later, the researchers have
()	ever. Dr Lawrence Krauss, from Arizona State University, said the discovery was as great as the invention
()	questions about our universe. Dr Krauss said: "It has opened a new window on the universe, just like the
()	before." He said it was beautiful that the discovery happened 100 years after Einstein's prediction.
()	we could have never seen beforeIt will also allow us to explore objects in the universe we've never seen
()	to how ripples in water move outwards after you throw a stone in a lake. The gravitational waves in space start
()	see the gravitational waves. Einstein did not have this technology. He used his genius to predict that the waves existed.
()	proved that Einstein's theory was right. The researchers used powerful technology to
()	of the telescope. He said it would let scientists see many new things in space. It would also answer many
()	time. They saw gravitational waves. These are waves that form in space and travel outwards. The waves are similar
()	telescope." He added that: "Using gravitational waves to explore the universe will allow us to see things
(1)	Scientists in the USA have seen something amazing in space for the very first
()	when two giant space objects hit each other. Albert Einstein first spoke about waves in space in
()	Scientists say the discovery of the gravitational waves is one of the most important discoveries

PUT THE WORDS IN THE RIGHT ORDER

1.	have Scientists seen in something the amazing USA .
2.	in space and travel outwards These are waves that form .
3.	in water move The waves are similar to how ripples .
4.	Einstein's Researchers theory have was proved right that .
5.	used his genius to predict that the waves existed He .
6.	the as great as was discovery The telescope the of invention .
7.	window universe has new the It a on opened .
8.	us Allow before seen never have could we things see to .
9.	universe the in objects explore to us allow also will It .
10.	it that happened said beautiful discovery He was the .

CIRCLE THE CORRECT WORD (20 PAIRS)

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

Scientists in the USA have seen something amazed / amazing in space for the very first time. They saw gravitational waves. These are waves that frame / form in space and travel / traveling outwards. The waves are similar / similarly to how ripples in water move outwards after you threw / throw a stone in a lake. The gravitational waves in space start when two giant space subjects / objects hit each other. Albert Einstein first spoken / spoke about waves in space in 1916 when he made his General Theory of Relativity. One hundred years after / later, the researchers have proved that Einstein's theory was right. The researchers used / usage powerful technology to see the gravitational waves. Einstein did not have this technology. He used his genius / genie to predict that the waves existed.

Scientists say the *discovered / discovery* of the gravitational waves is one of the most important discoveries *never / ever*. Dr Lawrence Krauss, from Arizona State University, said the discovery was as great *as / was* the invention of the telescope. He said it would let scientists see many new things *in / on* space. It would *as well / also* answer many questions about our universe. Dr Krauss said: "It has opened a new window on the universe, just *like / same* the telescope." He added that: "Using gravitational waves *to / for* explore the universe will *allow / allowing* us to see things we could have never seen before....It will also allow *they / us* to explore objects in the universe we've never seen before." He said it was *beauty / beautiful* that the discovery happened 100 years after Einstein's prediction.

Talk about the connection between each pair of words in italics, and why the correct word is correct.

INSERT THE VOWELS (a, e, i, o, u)

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

Sc__nt_sts _n th_ _S_ h_v_ s__n s_m_th_ng _m_z_ng sp_c_ f_r th_ v_ry f_rst t_m_. Th_y s_w gr_v_t_t_n_l w_v_s. Th_s_ _r_ w_v_s th_t f_rm _n sp_c_ _nd tr_v_l __tw_rds. Th_ w_v_s _r_ s_m_l_r t_ h_w r_ppl_s _n w_t_r m_v_ __tw_rds _ft_r y__ thr_w _ st_n_ _n _ l_k_. Th_ gr_v_t_t__n_l w_v_s _n sp_c_ st_rt wh_n tw_ g__nt sp_c_ _bj_cts h_t __ch _th_r. _lb_rt __nst__n f_rst sp_k_ _b__t w_v_s _n sp_c_ _n 1916 whnh md hsGnrlTh ry fRltvty. _n_ h_ndr_d y__rs l_t_r, th_ r_s__rch_rs h_v_ pr_v_d th_t __nst__n's th__ry w_s r_ght. Th_ r_s__rch_rs _s_d p_w_rf_l t_chn_l_gy t_ s__ th_ gr_v_t_t__n_l wvs. nst nddnthv ths tchnlgy. H $_$ s_d h_s g_n__s t_ pr_d_ct th_t th_ w_v_s _x_st_d. Sc__nt_sts s_y th_ d_sc_v_ry _f th_ gr_v_t_t__n_I w_v_s _s _n_ _f th_ m_st _mp_rt_nt d_sc_v_r__s _v_r. Dr L_wr_nc_ Kr__ss, fr_m _r_z_n_ St_t_ _n_v_rs_ty, s__d th_ d_sc_v_ry w_s _s gr__t _s th_ _nv_nt__n _f th_ t_l_sc_p_. H_ s__d _t w__ld l_t sc__nt_sts s__ m_ny n_w th_ngs _n sp_c_. _t w__ld _ls_ _nsw_r m_ny q__st__ns _b__t __r _n_v_rs_. Dr Kr__ss s__d: "_t h_s _p_n_d _ n_w w_nd_w _n th_ _n_v_rs_, j_st l_k_ th_ t_l_sc_p_." H_ _dd_d th_t: "_s_ng gr_v_t_t__n_l w_v_s t_ _xpl_r_ th_ _n_v_rs_ w_ll _ll_w _s t_ s__ th_ngs w_ c__ld h_v_ n_v_r s__n b_f_r_...._t w_ll _ls_ _ll_w _s t_ _xpl_r_ _bj_cts _n th_ _n_v_rs_ w_'v_ $\label{eq:control_n_v_r_s_n_b_f_r_."} n_v_r \; s_- n \; b_f_r_." \; H_s_- d_t \; w_s \; b_- t_f_l \; th_t \; th_$ d_sc_v_ry h_pp_n_d 100 y__rs _ft_r __nst__n's pr d ct n.

PUNCTUATE THE TEXT AND ADD CAPITALS

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

scientists in the usa have seen something amazing in space for the very first time they saw gravitational waves these are waves that form in space and travel outwards the waves are similar to how ripples in water move outwards after you throw a stone in a lake the gravitational waves in space start when two giant space objects hit each other albert einstein first spoke about waves in space in 1916 when he made his general theory of relativity one hundred years later the researchers have proved that einstein's theory was right the researchers used powerful technology to see the gravitational waves einstein did not have this technology he used his genius to predict that the waves existed

scientists say the discovery of the gravitational waves is one of the most important discoveries ever dr lawrence krauss from arizona state university said the discovery was as great as the invention of the telescope he said it would let scientists see many new things in space it would also answer many questions about our universe dr krauss said "it has opened a new window on the universe just like the telescope" he added that "using gravitational waves to explore the universe will allow us to see things we could have never seen before...it will also allow us to explore objects in the universe we've never seen before" he said it was beautiful that the discovery happened 100 years after einstein's prediction

PUT A SLASH (/) WHERE THE SPACES ARE

From http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html

ScientistsintheUSAhaveseensomethingamazinginspacefortheveryfi rsttime. They saw gravitational waves. These are waves that formins pac eandtraveloutwards. The waves are similar to how ripples in water move outwardsafteryouthrowastoneinalake. The gravitational waves in space $estart when two giants pace objects hit each other. Albert {\sf Einstein first spin} and {\sf Einstein first spin} are the {\sf Einstein first spin} and {\sf Einstein first spin} are the {\sf Einstein first spin} and {\sf Einstein first spin} are the {\sf Einstein first spin} and {\sf Einstein first spin} are the {\sf Einstein first spin} and {\sf Einstein first spin} are the {\sf Einstein first spi$ okeaboutwavesinspacein1916whenhemadehisGeneralTheoryofRel ativity.Onehundredyearslater,theresearchershaveprovedthatEinst ein'stheorywasright. Theresearchersused powerfultechnology to seet hegravitationalwaves. Einsteindidnothavethistechnology. Heusedhis geniustopredictthatthewavesexisted. Scientists say the discovery of the egravitationalwavesisoneofthemostimportantdiscoveriesever.DrLa wrenceKrauss,fromArizonaStateUniversity,saidthediscoverywasas greatastheinventionofthetelescope. Hesaiditwould letscientists seem anynewthingsinspace. It would also answer many questions about our u niverse.DrKrausssaid:"Ithasopenedanewwindowontheuniverse,jus tlikethetelescope."Headdedthat: "Usinggravitationalwavestoexplor etheuniversewillallowustoseethingswecouldhaveneverseenbefore... .Itwillalsoallowustoexploreobjectsintheuniversewe'veneverseenbef ore."Hesaiditwasbeautifulthatthediscoveryhappened100yearsafter Einstein'sprediction.

FREE WRITING

 $\textbf{From} \quad \underline{\text{http://www.BreakingNewsEnglish.com/1602/160214-gravitational-waves.html} \\$

Write about space for 10 minutes. Comment on your partner's paper.				

ACADEMIC WRITING

Finding life on other planets would be good for Earth. Discuss.				

HOMEWORK

- **1. VOCABULARY EXTENSION:** Choose several of the words from the text. Use a dictionary or Google's search field (or another search engine) to build up more associations / collocations of each word.
- **2. INTERNET:** Search the Internet and find out more about Einstein's Theory of Relativity. Share what you discover with your partner(s) in the next lesson.
- **3. SPACE:** Make a poster about space. Show your work to your classmates in the next lesson. Did you all have similar things?
- **4. LIVING IN SPACE:** Write a magazine article about living in space. Include imaginary interviews with people who are for and against it.

Read what you wrote to your classmates in the next lesson. Write down any new words and expressions you hear from your partner(s).

- **5. WHAT HAPPENED NEXT?** Write a newspaper article about the next stage in this news story. Read what you wrote to your classmates in the next lesson. Give each other feedback on your articles.
- **6. LETTER:** Write a letter to an expert on space. Ask him/her three questions about the universe. Give him/her three of your thoughts on space travel. Read your letter to your partner(s) in your next lesson. Your partner(s) will answer your questions.

ANSWERS

TRUE / FALSE (p.4)

a F b F c T d F e F f T g T h T

SYNONYM MATCH (p.4)

- 1. amazing
- 2. form
- 3. hit
- 4. proved
- 5. genius
- 6. discovery
- 7. let
- 8. explore
- 9. objects
- 10. happened

- a. investigate
- b. showed
- c. finding
- d. occurred
- e. develop
- f. things
- g. astonishing
- h. brilliance
- i. allow
- j. strike

COMPREHENSION QUESTIONS (p.8)

- 1. The USA
- 2. Outwards
- 3. Two giant space objects
- 4. 1916
- 5. His genius
- 6. Arizona
- 7. The telescope
- 8. Questions about the universe
- 9. Things we've never seen before
- 10. 100 years

MULTIPLE CHOICE - QUIZ (p.9)

1. d 2. b 3. c 4. a 5. c 6. b 7. d 8. a 9. c 10. b

ALL OTHER EXERCISES

Please check for yourself by looking at the Article on page 2. (It's good for your English ;-)