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Ready-to-Use English Lessons by Sean Banville

Level 3

New device can smell bombs and diseases

30th August, 2017

http://www.breakingnewsenglish.com/1708/170830-biotechnology.html

Contents

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

THE ARTICLE

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

A Nigerian engineer and neuroscientist has created a revolutionary new computer that has artificial intelligence (AI). Dr Oshi Agabi has spent many years trying to make a computer that can smell. He launched his start-up project last year and called it Koniku. He has raised over $1 million in funding. Dr Agabi said his project is already making profits of $10 million. Technology giants like Google and Microsoft are very interested in it. The security industry is also keeping a close watch. Koniku could be put in drones and smell bombs and explosives. It could also be used in airport security systems to smell explosives. An additional use could be in hospitals to smell diseases in humans.

Dr Agabi did not base Koniku on silicon chips. Agabi said computers have used silicon for decades, but it is not powerful enough to deal with the maths needed to recognize smells. Instead, he based his device on neurons from the brain of a mouse. Neurons are cells in the brain that share information. They use electricity and chemical signals to process and send information. Using neurons in computers is called biotechnology. Agabi said biotechnology can make devices that can smell. He said: "Biology is technology. Bio is tech. Our deep learning networks are all copying the brain." Agabi added: "We want to build a…system that has intelligence. We do not want to build a human brain. It's not science fiction."

Sources: http://www.**bbc.com**/news/technology-40935771
http://www.**nan.ng**/tech/nigerian-agabi-makes-drones-smell-bombs/
http://www.**hindustantimes.com**/world-news/nigerian-scientist-creates-neuron-based-ai-device-that-can-smell/story-6ra9sFunYGj8l6k1M24q8K.html

WARM-UPS

1. BIOTECHNOLOGY: Students walk around the class and talk to other students about biotechnology. 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?

engineer / artificial intelligence / computer / project / funding / security industry / silicon chips / decades / device / mouse / biotechnology / learning / networks / fiction

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

3. ROBOTS: Students A **strongly** believe robots are good for us; Students B **strongly** believe robots are bad for us. Change partners again and talk about your conversations.

4. TECHNOLOGY: How do these technologies help us now and how will they help in the future? Complete this table with your partner(s). Change partners often and share what you wrote.

	How does it help?	What it will be like in 2117
Biotechnology		
Food technology		
Nanotechnology		
Sports technology		
Medical technology		
Military technology		

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

6. SMELLS: Rank these with your partner. Put the most important things for computers to smell at the top. Change partners often and share your rankings.

- explosives
- diseases
- bombs
- gas leaks
- burglars
- bad food
- bad perfume
- weather

BEFORE READING / LISTENING

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

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

a. Two people invented the new device. **T / F**
b. The new project has made $10 million in profits. **T / F**
c. The security industry is not interested in it. **T / F**
d. The article says the device could make smells in hospitals disappear. **T / F**
e. Silicon chips are not powerful enough to make devices that can smell. **T / F**
f. The inventor used neurons from the brains of mice. **T / F**
g. The use of neurons in computers is called biotechnology. **T / F**
h. The inventor wants to try and build a human brain. **T / F**

2. SYNONYM MATCH:

Match the following synonyms. The words in **bold** are from the news article.

1. created	a. deal with
2. launched	b. business
3. raised	c. form
4. industry	d. started
5. additional	e. brain power
6. base	f. made
7. powerful	g. gadgets
8. process	h. got
9. devices	i. extra
10. intelligence	j. strong

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

1. created a revolutionary	a. chips
2. artificial	b. up project last year
3. He launched his start-	c. biotechnology
4. his project is already making profits	d. security systems
5. It could also be used in airport	e. in the brain
6. silicon	f. new computer
7. Neurons are cells	g. fiction
8. They use electricity and chemical	h. intelligence
9. Using neurons in computers is called	i. signals
10. science	j. of $10 million

GAP FILL

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

A Nigerian engineer and neuroscientist has created a revolutionary new computer that has (1) _____ intelligence (AI). Dr Oshi Agabi has spent many years trying to make a computer that can smell. He (2) _____ his start-up project last year and called it Koniku. He has raised over $1 million in (3) _____. Dr Agabi said his project is already making (4) _____ of $10 million. Technology giants like Google and Microsoft are very interested in it. The (5) _____ industry is also keeping a (6) _____ watch. Koniku could be put in drones and smell bombs and (7) _____. It could also be used in airport security systems to smell explosives. An additional use could be in hospitals to smell (8) _____ in humans.

close

launched

profits

diseases

artificial

explosives

security

funding

Dr Agabi did not base Koniku on (9) _____ chips. Agabi said computers have used silicon for (10) _____, but it is not powerful enough to deal with the maths needed to recognize smells. Instead, he based his (11) _____ on neurons from the brain of a mouse. Neurons are cells in the brain that (12) _____ information. They use electricity and chemical signals to (13) _____ and send information. Using neurons in computers is called biotechnology. Agabi said biotechnology can make devices that can smell. He said: "Biology is technology. Bio is (14) _____. Our deep learning networks are all copying the brain." Agabi added: "We want to build a…(15) _____ that has intelligence. We do not want to build a human brain. It's not science (16) _____."

decades

tech

share

fiction

silicon

system

device

process

LISTENING – Guess the answers. Listen to check.

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

1) created a revolutionary new computer that has _____ (AI)
   a. arty fissure intelligence
   b. arty facial intelligence
   c. artificial intelligence
   d. are tea fish all intelligence
2) Dr Agabi said his project is already making _____ $10 million
   a. profit soft
   b. proffer soft
   c. prof, its off
   d. profits of
3) The security industry is also keeping _____
   a. a cloze watch
   b. a clothes watch
   c. ache loads watch
   d. a close watch
4) It could also be used in airport security systems to _____
   a. smell explosives
   b. smell explosive
   c. smell explosion
   d. smell expo sieves
5) An additional use could be in hospitals to smell diseases _____
   a. inhumane
   b. inn humans
   c. in who mans
   d. in humans
6) Dr Agabi did not base Koniku on silicon chips. Agabi said computers have used _____
   a. silly con for decades
   b. sill icon for decades
   c. see lick on for decades
   d. silicon for decades
7) it is not powerful enough to deal with the maths needed to _____
   a. cognize smells
   b. re-cog nice smells
   c. recognize smells
   d. wreck cog nice smells
8) Agabi said biotechnology can make _____ smell
   a. devices what can
   b. devices that can
   c. devices than can
   d. device is that can
9) Our deep learning networks are all _____
   a. copy in the brain
   b. cope pee in the brain
   c. copying in the brain
   d. copying the brain
10) We do not want to build a human brain. It's not _____
   a. science fiction
   b. science faction
   c. science friction
   d. science fraction

LISTENING – Listen and fill in the gaps

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

A Nigerian engineer and neuroscientist (1) _____ revolutionary new computer (2) _____ intelligence (AI). Dr Oshi Agabi has spent many years trying to make a computer that can smell. He launched (3) _____ project last year and called it Koniku. He has raised over $1 million in funding. Dr Agabi said his project is already (4) _____ $10 million. Technology giants like Google and Microsoft are very interested in it. The security industry is also keeping a close watch. Koniku could (5) _____ and smell bombs and explosives. It could also be used in airport security systems to smell explosives. An additional (6) _____ hospitals to smell diseases in humans.

Dr Agabi did not base Koniku (7) _____. Agabi said computers have used silicon for decades, but it is not powerful (8) _____ with the maths needed to recognize smells. Instead, he based his device on neurons from (9) _____ mouse. Neurons are cells in the brain that share information. They use electricity and chemical (10) _____ and send information. Using neurons in computers is called biotechnology. Agabi said biotechnology can make devices that can smell. He said: "Biology is technology. Bio is tech. Our deep learning networks (11) _____ the brain." Agabi added: "We want to build a…system that has intelligence. We do not want to build a human brain. It's not (12) _____."

COMPREHENSION QUESTIONS

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

1. What is Dr Oshi Agabi's job besides being a neuroscientist?

2. When did Dr Agabi launch his start-up project?

3. How much profit has Dr Agabi made?

4. What kind of industry is interested in Dr Agabi's device?

5. Where could the new device smell diseases in humans?

6. What did Dr Agabi say was not powerful enough for his device?

7. From what animal's brain does the device use brain neurons?

8. What do neurons use to send information, besides chemical signals?

9. What did Dr Agabi say bio was?

10. What did Dr Agabi say he didn't want to build?

MULTIPLE CHOICE - QUIZ

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

1) What is Dr Oshi Agabi's job besides being a neuroscientist?
a) CEO
b) engineer
c) physicist
d) robot builder

2) When did Dr Agabi launch his start-up project?
a) earlier this year
b) three years ago
c) 2011
d) last year

3) How much profit has Dr Agabi made?
a) $10 million
b) $11 million
c) $12 million
d) $14 million

4) What kind of industry is interested in Dr Agabi's device?
a) the food industry
b) the spying industry
c) the security industry
d) the engineering industry

5) Where could the new device smell diseases in humans?
a) in airports
b) in hospitals
c) in the streets
d) in people's homes

6) What did Dr Agabi say was not powerful enough for his device?
a) silicon chips
b) the human brain
c) electricity
d) processes

7) From what animal's brain does the device use brain neurons?
a) a dog
b) a chimpanzee
c) a mouse
d) a monkey

8) What do neurons use to send information, besides chemical signals?
a) electricity
b) processes
c) silicon
d) protein

9) What did Dr Agabi say bio was?
a) tech
b) important
c) bionics
d) biomass

10) What did Dr Agabi say he didn't want to build?
a) a hospital
b) a building
c) a silicon chip computer
d) a human brain

ROLE PLAY

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

Role A – Biotechnology

You think biotechnology is the most important kind of technology. Tell the others three reasons why. Tell them what is wrong with their technology. Also, tell the others which is the least important of these (and why): food technology, weapons technology or sports technology.

Role B – Food Technology

You think food technology is the most important kind of technology. Tell the others three reasons why. Tell them what is wrong with their technology. Also, tell the others which is the least important of these (and why): biotechnology, weapons technology or sports technology.

Role C – Weapons Technology

You think weapons technology is the most important kind of technology. Tell the others three reasons why. Tell them what is wrong with their technology. Also, tell the others which is the least important of these (and why): food technology, biotechnology or sports technology.

Role D – Sports Technology

You think sports technology is the most important kind of technology. Tell the others three reasons why. Tell them what is wrong with their technology. Also, tell the others which is the least important of these (and why): food technology, weapons technology or biotechnology.

AFTER READING / LISTENING

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

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

bombs	**diseases**

- 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:

• engineer • spent • launched • making • close • additional	• decades • based • mouse • signals • deep • fiction

BIOTECHNOLOGY SURVEY

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

Write five GOOD questions about biotechnology 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.

BIOTECHNOLOGY DISCUSSION

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

1. What did you think when you read the headline?
2. What images are in your mind when you hear the word 'silicon'?
3. What do you know about neuroscience?
4. What do you know about artificial intelligence?
5. What do you think of computers that can smell?
6. How important are computers?
7. How important is artificial intelligence?
8. How useful is a computer that can smell?
9. How could computers that can smell fight terrorism?
10. Would you like a computer that can smell?

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BIOTECHNOLOGY DISCUSSION

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

11. Did you like reading this article? Why/not?
12. What do you think of when you hear the word 'chip'?
13. What do you think about what you read?
14. How useful are silicon chips?
15. What do you think of the new neurons computer?
16. What do you know about biotechnology?
17. How difficult is it for a computer to copy the brain?
18. What do you think of science fiction?
19. How much is life like science fiction?
20. What questions would you like to ask Dr Agabi?

DISCUSSION (Write your own questions)

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

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

DISCUSSION (Write your own questions)

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

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

LANGUAGE - CLOZE

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

A Nigerian engineer and neuroscientist has (1) _____ a revolutionary new computer that has (2) _____ intelligence (AI). Dr Oshi Agabi has spent many years trying to make a computer that can smell. He launched his start-(3) _____ project last year and called it Koniku. He has raised over $1 million in funding. Dr Agabi said his project is already (4) _____ profits of $10 million. Technology giants like Google and Microsoft are very interested in it. The security industry is also keeping a (5) _____ watch. Koniku could be put in drones and smell bombs and explosives. It could also be used in airport security systems to smell explosives. An additional use could be in hospitals to smell diseases (6) _____ humans.

Dr Agabi did not (7) _____ Koniku on silicon chips. Agabi said computers have used silicon for decades, but it is not powerful enough to deal (8) _____ the maths needed to recognize smells. Instead, he based his device on neurons from the brain of a mouse. Neurons are cells in the brain that (9) _____ information. They use electricity and chemical signals to (10) _____ and send information. Using neurons in computers is called biotechnology. Agabi said biotechnology can make devices that can smell. He said: "Biology is technology. Bio is tech. Our (11) _____ learning networks are all copying the brain." Agabi added: "We want to build a…system that has intelligence. We do not want to build a human brain. It's not science (12) _____."

Put the correct words from the table below in the above article.

1.	(a)	creative	(b)	creation	(c)	created	(d)	creates
2.	(a)	artificial	(b)	artifice	(c)	artificially	(d)	arty-farty
3.	(a)	up	(b)	down	(c)	on	(d)	off
4.	(a)	making	(b)	makes	(c)	made	(d)	made
5.	(a)	closely	(b)	close	(c)	closet	(d)	closed
6.	(a)	on	(b)	at	(c)	by	(d)	in
7.	(a)	basis	(b)	bases	(c)	base	(d)	bias
8.	(a)	to	(b)	of	(c)	by	(d)	with
9.	(a)	share	(b)	shave	(c)	shade	(d)	shame
10.	(a)	recess	(b)	process	(c)	regress	(d)	digress
11.	(a)	depth	(b)	deep	(c)	deeply	(d)	deepen
12.	(a)	fraction	(b)	faction	(c)	fiction	(d)	friction

SPELLING

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

Paragraph 1

1. irfacialti intelligence (AI)
2. raised over $1 million in dgunifn
3. making ospfrti of $10 million
4. The usrtyiec industry
5. smell bombs and ilpsevsxoe
6. smell adessies in humans

Paragraph 2

7. nilscoi chips
8. for ecdsaed
9. srcpoes and send information
10. make edievcs that can smell
11. Our deep learning trekwosn
12. It's not science tcoiifn

PUT THE TEXT BACK TOGETHER

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

Number these lines in the correct order.

( ) are very interested in it. The security industry is also keeping a close watch. Koniku could be put in drones and smell bombs

( ) smell. He launched his start-up project last year and called it Koniku. He has raised over $1 million

( ) and explosives. It could also be used in airport security systems to smell

( ) tech. Our deep learning networks are all copying the brain." Agabi added: "We want to build a…system

( ) in funding. Dr Agabi said his project is already making profits of $10 million. Technology giants like Google and Microsoft

( ) explosives. An additional use could be in hospitals to smell diseases in humans.

( ) intelligence (AI). Dr Oshi Agabi has spent many years trying to make a computer that can

( ) and chemical signals to process and send information. Using neurons in computers is called

( ) decades, but it is not powerful enough to deal with the maths needed to recognize smells. Instead, he based his

( ) that has intelligence. We do not want to build a human brain. It's not science fiction."

(***1***) A Nigerian engineer and neuroscientist has created a revolutionary new computer that has artificial

( ) device on neurons from the brain of a mouse. Neurons are cells in the brain that share information. They use electricity

( ) Dr Agabi did not base Koniku on silicon chips. Agabi said computers have used silicon for

( ) biotechnology. Agabi said biotechnology can make devices that can smell. He said: "Biology is technology. Bio is

PUT THE WORDS IN THE RIGHT ORDER

From http://www.BreakingNewsEnglish.com/1709/170901-pronunciation.html

1. 1. that computer new revolutionary A intelligence artificial has .

2. 2. to computer spent trying a has years make Agabi many .

3. 3. close is watch also The keeping security a industry .

4. 4. be systems used It in could airport also security .

5. 5. to An could hospitals diseases use in smell additional be .

6. 6. not to the is enough with It powerful deal maths .

7. 7. on device his based He mouse a of brain the from neurons .

8. 8. computers called Using in is biotechnology neurons .

9. 9. all deep copying learning the networks brain are Our .

10. 10. We build do a not human want brain to .

CIRCLE THE CORRECT WORD (20 PAIRS)

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

A Nigerian *engineer / engineering* and neuroscientist has created a revolutionary new computer that has *artificially / artificial* intelligence (AI). Dr Oshi Agabi has spent many years *tried / trying* to make a computer that can smell. He launched his start-up project last year and called it Koniku. He has *rise / raised* over $1 million in *funding / finding*. Dr Agabi said his project is already making *profitable / profits* of $10 million. Technology giants like Google and Microsoft are very interested *on / in* it. The security industry is also keeping a close watch. Koniku could be put in *drones / drains* and smell bombs and explosives. It could also be used in airport security systems to smell *explosion / explosives*. An additional use could be in hospitals to smell diseases *on / in* humans.

Dr Agabi did not *bias / base* Koniku on silicon chips. Agabi said computers have used silicon for *decadence / decades*, but it is not powerful enough to *deal / dealing* with the maths needed to recognize smells. Instead, he based his device *on / in* neurons from the brain of a mouse. Neurons are cells in the brain that share *informative / information*. They use electricity and chemical signals to process and send information. Using neurons in computers is *calling / called* biotechnology. Agabi said biotechnology can make *devices / device* that can smell. He said: "Biology is technology. Bio is tech. Our deep learning networks are *every / all* copying the brain." Agabi added: "We want to build a…system that *was / has* intelligence. We do not want to build a human brain. It's not science *fiction / friction*."

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/1708/170830-biotechnology.html

_ N_g_r__n _ng_n__r _nd n__r_sc__nt_st h_s cr__t_d _ r_v_l_t__n_ry n_w c_mp_t_r th_t h_s _rt_f_c__l _nt_ll_g_nc_ (__). Dr _sh_ _g_b_ h_s sp_nt m_ny y__rs try_ng t_ m_k_ _ c_mp_t_r th_t c_n sm_ll. H_ l__nch_d h_s st_rt-_p pr_j_ct l_st y__r _nd c_ll_d _t K_n_k_. H_ h_s r__s_d _v_r $1 m_ll__n _n f_nd_ng. Dr _g_b_ s__d h_s pr_j_ct _s _lr__dy m_k_ng pr_f_ts _f $10 m_ll__n. T_chn_l_gy g__nts l_k_ G__gl_ _nd M_cr_s_ft _r_ v_ry _nt_r_st_d _n _t. Th_ s_c_r_ty _nd_stry _s _ls_ k__p_ng _ cl_s_ w_tch. K_n_k_ c__ld b_ p_t _n dr_n_s _nd sm_ll b_mbs _nd _xpl_s_v_s. _t c__ld _ls_ b_ _s_d _n __rp_rt s_c_r_ty syst_ms t_ sm_ll _xpl_s_v_s. _n _dd_t__n_l _s_ c__ld b_ _n h_sp_t_ls t_ sm_ll d_s__s_s _n h_m_ns.

Dr _g_b_ d_d n_t b_s_ K_n_k_ _n s_l_c_n ch_ps. _g_b_ s__d c_mp_t_rs h_v_ _s_d s_l_c_n f_r d_c_d_s, b_t _t _s n_t p_w_rf_l _n__gh t_ d__l w_th th_ m_ths n__d_d t_ r_c_gn_z_ sm_lls. _nst__d, h_ b_s_d h_s d_v_c_ _n n__r_ns fr_m th_ br__n _f _ m__s_. N__r_ns _r_ c_lls _n th_ br__n th_t sh_r_ _nf_rm_t__n. Th_y _s_ _l_ctr_c_ty _nd ch_m_c_l s_gn_ls t_ pr_c_ss _nd s_nd _nf_rm_t__n. _s_ng n__r_ns _n c_mp_t_rs _s c_ll_d b__t_chn_l_gy. _g_b_ s__d b__t_chn_l_gy c_n m_k_ d_v_c_s th_t c_n sm_ll. H_ s__d: "B__l_gy _s t_chn_l_gy. B__ _s t_ch. __r d__p l__rn_ng n_tw_rks _r_ _ll c_py_ng th_ br__n." _g_b_ _dd_d: "W_ w_nt t_ b__ld _…syst_m th_t h_s _nt_ll_g_nc_. W_ d_ n_t w_nt t_ b__ld _ h_m_n br__n. _t's n_t sc__nc_ f_ct__n."

PUNCTUATE THE TEXT AND ADD CAPITALS

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

a nigerian engineer and neuroscientist has created a revolutionary new computer that has artificial intelligence (ai) dr oshi agabi has spent many years trying to make a computer that can smell he launched his start-up project last year and called it koniku he has raised over $1 million in funding dr agabi said his project is already making profits of $10 million technology giants like google and microsoft are very interested in it the security industry is also keeping a close watch koniku could be put in drones and smell bombs and explosives it could also be used in airport security systems to smell explosives an additional use could be in hospitals to smell diseases in humans

dr agabi did not base koniku on silicon chips agabi said computers have used silicon for decades but it is not powerful enough to deal with the maths needed to recognize smells instead he based his device on neurons from the brain of a mouse neurons are cells in the brain that share information they use electricity and chemical signals to process and send information using neurons in computers is called biotechnology agabi said biotechnology can make devices that can smell he said "biology is technology bio is tech our deep learning networks are all copying the brain" agabi added "we want to build a…system that has intelligence we do not want to build a human brain it's not science fiction"

PUT A SLASH (/) WHERE THE SPACES ARE

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

ANigerianengineerandneuroscientisthascreatedarevolutionarynew computerthathasartificialintelligence(AI).DrOshiAgabihasspentma nyyearstryingtomakeacomputerthatcansmell.Helaunchedhisstart-upprojectlastyearandcalleditKoniku.Hehasraisedover$1millioninfu nding.DrAgabisaidhisprojectisalreadymakingprofitsof$10million.Te chnologygiantslikeGoogleandMicrosoftareveryinterestedinit.These curityindustryisalsokeepingaclosewatch.Konikucouldbeputindrones andsmellbombsandexplosives.Itcouldalsobeusedinairportsecuritys ystemstosmellexplosives.Anadditionalusecouldbeinhospitalstosmel ldiseasesinhumans.DrAgabididnotbaseKonikuonsiliconchips.Agabis aidcomputershaveusedsiliconfordecades,butitisnotpowerfulenough todealwiththemathsneededtorecognizesmells.Instead,hebasedhisd eviceonneuronsfromthebrainofamouse.Neuronsarecellsinthebraint hatshareinformation.Theyuseelectricityandchemicalsignalstoproce ssandsendinformation.Usingneuronsincomputersiscalledbiotechnol ogy.Agabisaidbiotechnologycanmakedevicesthatcansmell.Hesaid:" Biologyistechnology.Bioistech.Ourdeeplearningnetworksareallcopy ingthebrain."Agabiadded:"Wewanttobuilda…systemthathasintellig ence.Wedonotwanttobuildahumanbrain.It'snotsciencefiction."

FREE WRITING

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

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

ACADEMIC WRITING

From http://www.BreakingNewsEnglish.com/1708/170830-biotechnology.html

Robots with artificial intelligence will never be a danger to humans. 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 biotechnology. Share what you discover with your partner(s) in the next lesson.

3. BIOTECHNOLOGY: Make a poster about biotechnology. Show your work to your classmates in the next lesson. Did you all have similar things?

4. ROBOTS: Write a magazine article about robots becoming an important part of our home life. 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 biotechnology. Ask him/her three questions about it. Give him/her three of your ideas on how it can help us. 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 T c F d F e T f T g T h F

SYNONYM MATCH (p.4)

1.	**created**	a.	made
2.	**launched**	b.	started
3.	**raised**	c.	got
4.	**industry**	d.	business
5.	**additional**	e.	extra
6.	**base**	f.	form
7.	**powerful**	g.	strong
8.	**process**	h.	deal with
9.	**devices**	i.	gadgets
10.	**intelligence**	j.	brain power

COMPREHENSION QUESTIONS (p.8)

1. An engineer
2. Last year
3. $10 million
4. The security industry
5. Hospitals
6. Silicon chips
7. Mice
8. Electricity
9. Tech
10. A human brain

MULTIPLE CHOICE - QUIZ (p.9)

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

ALL OTHER EXERCISES

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