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Level 3

Scientists change plants' sunblock to grow more crops

19th November, 2016

<http://www.breakingnewsenglish.com/1611/161119-photosynthesis.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/1611/161119-photosynthesis.html>

Plant biologists have thought of a clever new way to increase the size of crops by as much as 20 per cent. They have genetically modified part of the mechanism in plants that is responsible for photosynthesis. Of course, photosynthesis is the most important chemical reaction in the world. It is the process where plants use sunlight to change carbon dioxide into oxygen. This means we can all breathe. The scientists have found a way for plants to use the energy they get from sunlight better, so they grow bigger and produce more food. Lead researcher Professor Stephen Long said his team is genetically modifying staple crops such as rice, wheat, maize and soybean – the world's biggest crops.

The scientists targeted the mechanism that plants use to protect themselves from damage when the Sun's rays are too strong. To prevent damage, plants turning their energy into heat, which disappears into the air. However, this heat-loss process continues even when clouds block the Sun. The scientists put extra copies of the heat-loss genes into modified plants. These additional copies speed up the heat-loss process so the plants can more quickly return to using energy to grow. Professor Long believes this could help the world's food needs. He said if he could get 20 per cent more food from crops, "that would greatly [reduce] what we see as the future pressure on food supply".

Sources: <http://www.sciencemag.org/news/2016/11/how-turning-plants-sunshield-can-grow-bigger-crops>
<https://www.sciencedaily.com/releases/2016/11/161117141231.htm>
<http://www.the-scientist.com/?articles.view/articleNo/47544/title/Genetic-Modification-Improves-Photosynthetic-Efficiency/>

WARM-UPS

1. PLANTS: Students walk around the class and talk to other students about plants. 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?

plant / biologists / genetically modified / mechanism / chemical / reaction / sunlight / protect / damage / energy / heat / process / grow / food / future / pressure / supply

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

3. FOOD SUPPLY: Students A **strongly** believe there will always be enough food; Students B **strongly** believe there won't. Change partners again and talk about your conversations.

4. STAPLE CROPS: What do you know about the uses of these staple crops? Complete this table with your partner(s). Change partners often and share what you wrote.

	Uses	Dishes	How useful?
Rice			
Wheat			
Maize			
Soybean			
Potato			
Lentils			

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

6. FOOD SUPPLY: Rank these with your partner. Put the biggest dangers to food supply at the top. Change partners often and share your rankings.

- overpopulation
- climate change
- overeating
- drought
- pests
- genetic modification
- war
- ageing workers

BEFORE READING / LISTENING

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

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

- a. Biologists have created a better sunblock from plants and crops. **T / F**
- b. Photosynthesis is the process that converts oxygen to carbon dioxide. **T / F**
- c. Scientists found a better way for plants to use energy to grow. **T / F**
- d. Scientists said they had genetically modified stable crops. **T / F**
- e. Plants cannot protect themselves from the sun's strong rays. **T / F**
- f. Plants turn their energy to heat even when it is cloudy. **T / F**
- g. Scientists added genes to plants so they could use energy to grow. **T / F**
- h. The scientists say their idea could help the world's food supply. **T / F**

2. SYNONYM MATCH:

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

- | | |
|----------------------|---------------|
| 1. clever | a. extra |
| 2. mechanism | b. discovered |
| 3. change | c. harm |
| 4. found | d. thinks |
| 5. produce | e. smart |
| 6. damage | f. goes on |
| 7. continues | g. transform |
| 8. additional | h. cut |
| 9. believes | i. process |
| 10. reduce | j. grow |

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

- | | |
|--|------------------------|
| 1. Plant biologists have thought of a clever | a. and soybean |
| 2. increase the size of crops by as | b. get from sunlight |
| 3. chemical | c. needs |
| 4. use the energy they | d. from damage |
| 5. crops such as rice, wheat, maize | e. much as 20 per cent |
| 6. protect themselves | f. into heat |
| 7. the Sun's rays are too | g. new way |
| 8. plants turn their energy | h. on food supply |
| 9. this could help the world's food | i. reaction |
| 10. the future pressure | j. strong |

GAP FILL

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

Plant biologists have thought of a (1) _____ new way to increase the size of crops by as much as 20 per cent. They have genetically (2) _____ part of the mechanism in plants that is responsible for photosynthesis. Of course, photosynthesis is the most important chemical (3) _____ in the world. It is the process where plants use sunlight to change carbon dioxide into (4) _____. This means we can all breathe. The scientists have found a (5) _____ for plants to use the energy they get from sunlight (6) _____, so they grow bigger and (7) _____ more food. Lead researcher Professor Stephen Long said his team is genetically modifying staple crops such as rice, (8) _____, maize and soybean – the world's biggest crops.

reaction
way
wheat
clever
produce
modified
oxygen
better

The scientists (9) _____ the mechanism that plants use to protect themselves from damage when the Sun's rays are too (10) _____. To prevent damage, plants turning their energy into (11) _____, which disappears into the air. However, this heat-loss process continues even when clouds (12) _____ the Sun. The scientists put extra copies of the heat-loss genes into modified plants. These (13) _____ copies speed up the heat-loss process so the plants can more quickly return to using energy to (14) _____. Professor Long believes this could help the world's food needs. He said if he could get 20 per cent more food from crops, "that would greatly (15) _____ what we see as the future pressure on food (16) _____".

strong
additional
reduce
heat
supply
targeted
grow
block

LISTENING – Guess the answers. Listen to check.

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

- 1) Plant biologists have thought of a clever new way to increase the _____
 - a. sized of crops
 - b. seize of crops
 - c. sizing of crops
 - d. size of crops
- 2) They have genetically modified part of the _____
 - a. mechanism on plants
 - b. mechanism in plants
 - c. mechanism at plants
 - d. mechanism by plants
- 3) photosynthesis is the most important chemical _____ world
 - a. reaction in the world
 - b. reactions in the world
 - c. reacting in the world
 - d. retraction in the world
- 4) scientists have found a way for plants to use the energy they _____
 - a. get for sunlight
 - b. gets from sunlight
 - c. get from sun lights
 - d. get from sunlight
- 5) genetically modifying staple crops such as rice, wheat, _____
 - a. maze and soybeans
 - b. maize and soybean
 - c. amaze and soybeans
 - d. maze and soybean
- 6) targeted the mechanism that plants use to protect themselves _____
 - a. from damaged
 - b. from damaging
 - c. from damaged
 - d. from damage
- 7) To prevent damage, plants turn their energy _____
 - a. onto heat
 - b. in two heat
 - c. into heat
 - d. into heats
- 8) However, this heat-loss process continues even when _____ Sun
 - a. clouds block the
 - b. clouds black the
 - c. cloud block the
 - d. cloud black the
- 9) Professor Long believes this could help the _____
 - a. world's food needy
 - b. world's food needed
 - c. world's food needing
 - d. world's food needs
- 10) that would greatly reduce what we see as the future pressure _____
 - a. in food supply
 - b. on food supply
 - c. on food supplied
 - d. on food supplier

LISTENING – Listen and fill in the gaps

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

Plant biologists have thought (1) _____ new way to increase the size of crops by as much as 20 per cent. They have genetically modified part of the mechanism in plants that (2) _____ photosynthesis. Of course, photosynthesis is the most important chemical reaction in the world. It (3) _____ where plants use sunlight to change carbon dioxide into oxygen. This means we can all breathe. The scientists have found (4) _____ plants to use the energy they get from sunlight better, so (5) _____ and produce more food. Lead researcher Professor Stephen Long said his team is genetically modifying staple crops (6) _____, wheat, maize and soybean – the world's biggest crops.

The scientists targeted the mechanism that plants (7) _____ themselves from damage when the Sun's rays are too strong. To prevent damage, plants turning (8) _____ heat, which disappears into the air. However, (9) _____ process continues even when clouds block the Sun. The scientists put extra copies of the heat-loss genes into modified plants. These (10) _____ speed up the heat-loss process so the plants can more quickly return to using energy to grow. Professor Long believes this could (11) _____ food needs. He said if he could get 20 per cent more food from crops, "that would greatly [reduce] (12) _____ the future pressure on food supply".

COMPREHENSION QUESTIONS

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

1. What kind of biologists thought of a new way to increase crop sizes?
2. What is the name of the chemical reaction mentioned in the article?
3. Where do plants get their energy from?
4. What did the scientists make plants grow more of?
5. What kind of crops are rice, wheat, maize and soybean?
6. What do plants protect themselves from?
7. Where does the heat from plants disappear into?
8. What do plants use their extra energy for?
9. Who believes the new idea could help the world's food needs?
10. What does a scientist think there will be less pressure on?

MULTIPLE CHOICE - QUIZ

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

- 1) What kind of biologists thought of a new way to increase crop sizes?
 - a) plant biologists
 - b) prize-winning biologists
 - c) French biologists
 - d) human biologists
- 2) What is the name of the chemical reaction mentioned in the article?
 - a) photoshopping
 - b) photovoltaic
 - c) photosynthesis
 - d) photography
- 3) Where do plants get their energy from?
 - a) gas
 - b) sunlight
 - c) electricity
 - d) bees
- 4) What did the scientists make plants grow more of?
 - a) pollen
 - b) roots
 - c) petals
 - d) food
- 5) What kind of crops are rice, wheat, maize and soybean?
 - a) staple crops
 - b) stable crops
 - c) stubble crops
 - d) stapler crops
- 6) What do plants protect themselves from?
 - a) scientists
 - b) bees
 - c) themselves
 - d) the Sun's rays
- 7) Where does the heat from plants disappear into?
 - a) the ground
 - b) the air
 - c) their roots
 - d) the forest
- 8) What do plants use their extra energy for?
 - a) to attract bees
 - b) to get deeper roots
 - c) to become more green
 - d) to grow
- 9) Who believes the new idea could help the world's food needs?
 - a) beekeepers
 - b) chefs
 - c) Professor Long
 - d) farmers
- 10) What does a scientist think there will be less pressure on?
 - a) bees
 - b) food supply
 - c) blood
 - d) money

ROLE PLAY

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

Role A – Overpopulation

You think overpopulation is the biggest danger to the world's food supply. Tell the others three reasons why. Tell them why their reasons aren't as bad. Also, tell the others which is the smallest danger of these (and why): climate change, over-eating or ageing workers.

Role B – Climate change

You think climate change is the biggest danger to the world's food supply. Tell the others three reasons why. Tell them why their reasons aren't as bad. Also, tell the others which is the smallest danger of these (and why): overpopulation, over-eating or ageing workers.

Role C – Over-eating

You think over-eating is the biggest danger to the world's food supply. Tell the others three reasons why. Tell them why their reasons aren't as bad. Also, tell the others which is the smallest danger of these (and why): climate change, overpopulation or ageing workers.

Role D – Ageing workers

You think workers getting older is the biggest danger to the world's food supply. Tell the others three reasons why. Tell them why their reasons aren't as bad. Also, tell the others which is the smallest danger of these (and why): climate change, over-eating or overpopulation.

AFTER READING / LISTENING

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

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

food	supply
-------------	---------------

- 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:

<ul style="list-style-type: none">• clever• responsible• reaction• breathe• bigger• such	<ul style="list-style-type: none">• protect• air• extra• speed• quickly• see
---	---

PLANTS SURVEY

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

Write five GOOD questions about plants 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.

PLANTS 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 'plant'?
3. What do you know about photosynthesis?
4. What do you think of genetically modifying plants and crops?
5. What do you think about what you read?
6. How important could this news be?
7. Where do you get your energy from?
8. Which staple food do you prefer, and why?
9. What does sunlight do to you?
10. What advice do you have for farmers?

Scientists change plants' sunblock to grow more crops – 19th November, 2016
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PLANTS DISCUSSION

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

11. Did you like reading this article? Why/not?
12. What are the dangers of genetically modified food?
13. What are the benefits of genetically modified food?
14. What do you know about genes?
15. What did the scientists do to make the crops bigger?
16. Why are so many people in the world without food?
17. What will happen if we cannot produce enough food?
18. How would the world change if we were all vegetarian?
19. What will the food supply be like in 50 years from now?
20. What questions would you like to ask the researchers?

DISCUSSION (Write your own questions)

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

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

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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/1611/161119-photosynthesis.html>

Plant biologists have thought of a (1) _____ new way to increase the size of crops by as much as 20 per cent. They have genetically modified part of the mechanism in plants that is (2) _____ for photosynthesis. Of course, photosynthesis is the most important chemical reaction in the world. It is the process where plants use sunlight to change carbon dioxide (3) _____ oxygen. This means we can all (4) _____. The scientists have found a way for plants to use the energy they get from sunlight (5) _____, so they grow bigger and produce more food. Lead researcher Professor Stephen Long said his team is genetically modifying (6) _____ crops such as rice, wheat, maize and soybean – the world's biggest crops.

The scientists targeted the mechanism that plants use (7) _____ protect themselves from damage when the Sun's rays are too strong. To prevent damage, plants turning their energy into heat, which disappears into the air. However, this heat-loss process continues (8) _____ when clouds block the Sun. The scientists put extra copies of the heat-loss genes into modified plants. These (9) _____ copies speed up the heat-loss process so the plants can more (10) _____ return to using energy to grow. Professor Long believes this could help the world's food (11) _____. He said if he could get 20 per cent more food from crops, "that would greatly [reduce] what we see as the future pressure (12) _____ food supply".

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

- | | | | | |
|-----|-----------------|-----------------|----------------------|--------------------|
| 1. | (a) cleaver | (b) clever | (c) cleft | (d) cleverly |
| 2. | (a) responsibly | (b) responsible | (c) responsibilities | (d) responsibility |
| 3. | (a) on two | (b) onto | (c) unto | (d) into |
| 4. | (a) breathy | (b) breathe | (c) breath | (d) breather |
| 5. | (a) efficient | (b) better | (c) good | (d) wellness |
| 6. | (a) stubble | (b) stable | (c) staple | (d) stapler |
| 7. | (a) for | (b) at | (c) to | (d) by |
| 8. | (a) ever | (b) never | (c) even | (d) near |
| 9. | (a) adds | (b) add | (c) addition | (d) additional |
| 10. | (a) quickly | (b) quick | (c) quicker | (d) quickest |
| 11. | (a) needs | (b) needy | (c) needing | (d) needed |
| 12. | (a) in | (b) by | (c) on | (d) at |

SPELLING

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

Paragraph 1

1. Plant siloiigostb
2. that is loserenibps for photosynthesis
3. use the energy they get from higtlnus
4. oepdcru more food
5. epltsa crops
6. rice, wteah, maize and soybean

Paragraph 2

7. protect themselves from aamged
8. this heat-loss crpsoes continues
9. meodiidf plants
10. litaniaodd copies
11. that would greatly ueedcr what we see
12. the future essreup on food supply

PUT THE TEXT BACK TOGETHER

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

Number these lines in the correct order.

- () better, so they grow bigger and produce more food. Lead researcher Professor Stephen Long said his team
- () is genetically modifying staple crops such as rice, wheat, maize and soybean – the world's biggest crops.
- () much as 20 per cent. They have genetically modified part of the mechanism in plants that is responsible
- () can all breathe. The scientists have found a way for plants to use the energy they get from sunlight
- (**1**) Plant biologists have thought of a clever new way to increase the size of crops by as
- () help the world's food needs. He said if he could get 20 per cent more food from
- () too strong. To prevent damage, plants turn their energy into heat, which disappears into the
- () copies of the heat-loss genes into modified plants. These additional copies speed up the heat-loss process so the
- () plants can more quickly return to using energy to grow. Professor Long believes this could
- () crops, "that would greatly reduce what we see as the future pressure on food supply".
- () reaction in the world. It is the process where plants use sunlight to change carbon dioxide into oxygen. This means we
- () air. However, this heat-loss process continues even when clouds block the Sun. The scientists put extra
- () for photosynthesis. Of course, photosynthesis is the most important chemical
- () The scientists targeted the mechanism that plants use to protect themselves from damage when the Sun's rays are

PUT THE WORDS IN THE RIGHT ORDER

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

1. of Plant a biologists clever have new thought way .
2. size the Increase cent per 20 as much as by crops of .
3. reaction chemical important most The world the in .
4. sunlight from get they energy the use to plants for way A .
5. rice is staple as team modifying such His genetically crops .
6. to use plants that mechanism The themselves protect .
7. into prevent plants energy To , their heat damage turn .
8. Sun the block clouds when even continues process heat-loss This .
9. additional up - These speed heat process copies the loss .
10. needs help Long the believes world's this food could .

CIRCLE THE CORRECT WORD (20 PAIRS)

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

Plant biologists have *thought / thinking* of a clever new way to increase the size of crops by as *many / much* as 20 per cent. They have genetically modified part of the mechanism *on / in* plants that is responsible *for / from* photosynthesis. Of course, photosynthesis is the most important chemical reaction in the world. It is the process where plants use *sunlight / sunny* to change carbon dioxide *into / onto* oxygen. This means we can all *breath / breathe*. The scientists have found a way for plants to use *the / an* energy they get from sunlight better, so they *grow / grew* bigger and produce more food. Lead researcher Professor Stephen Long said his team is genetically modifying staple crops *such / much* as rice, wheat, maize and soybean – the world's biggest crops.

The scientists targeted the *mechanism / mechanic* that plants use to protect themselves from damage when the Sun's rays are too *strength / strong*. To prevent damage, plants turning their energy into *hot / heat*, which disappears into the air. However, this heat-loss process *continues / continue* even when *cloudy / clouds* block the Sun. The scientists put extra copies of the heat-loss genes into modified plants. These *addition / additional* copies speed up the heat-loss process *so / such* the plants can more quickly return to using energy to *growth / grow*. Professor Long believes this could help the world's food *needing / needs*. He said if he could get 20 per cent more food from crops, "that would greatly [reduce] what we see as the future pressure *on / in* food supply".

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/1611/161119-photosynthesis.html>

Pl_nt b__l_g_sts h_v_ th__ght _f _ cl_v_r n_w w_y t_
_ncr__s_ th_ s_z_ _f cr_ps by _s m_ch _s 20 p_r c_nt.
Th_y h_v_ g_n_t_c_lly m_d_f__d p_rt _f th_
m_ch_n_sm _n pl_n_t_s th_t _s r_sp_n_s_bl_ f_r
ph_t_synth_s_s. _f c__rs_, ph_t_synth_s_s _s th_ m_st
_mp_rt_nt ch_m_c_l r__ct__n _n th_ w_rld. _t _s th_
pr_c_ss wh_r_ pl_n_t_s _s_ s_nl_gh_t t_ ch_ng_ c_r_b_n
d__x_d_ _nt_ _xyg_n. Th_s m__ns w_ c_n _ll br__th_.
Th_ sc__nt_sts h_v_ f__nd _w_y f_r pl_n_t_s t_ _s_ th_
_n_rgy th_y g_t fr_m s_nl_gh_t b_tt_r, s_ th_y gr_w
b_gg_r _nd pr_d_c_ m_r_ f__d. L__d r_s__rch_r
Pr_f_ss_r St_ph_n L_ng s__d h_s t__m _s g_n_t_c_lly
m_d_fy_ng st_pl_ cr_ps s_ch _s r_c_, wh__t, m__z_
_nd s_yb__n - th_ w_rld's b_gg_st cr_ps.

Th_ sc__nt_sts t_rg_t_d th_ m_ch_n_sm th_t pl_n_t_s _s_
t_ pr_t_ct th_ms_lv_s fr_m d_m_g_ wh_n th_ S_n's
r_ys _r_ t__str ng. T_ pr_v_nt d_m_g_, pl_n_t_s t_rn_ng
th__r _n_rgy _nt_ h__t, wh_ch d_s_pp__rs _nt_ th_
__r. H_w_v_r, th_s h__t-l_ss pr_c_ss c_nt_n__s _v_n
wh_n cl__ds bl_ck th_ S_n. Th_ sc__nt_sts p_t _xtr_
c_p__s _f th_ h__t-l_ss g_n_s _nt_ m_d_f__d pl_n_t_s.
Th_s_ _dd_t__n_l c_p__s sp__d _p th_ h__t-l_ss
pr_c_ss s_ th_ pl_n_t_s c_n m_r_ q__ckly r_t_rn t__s ng
_n_rgy t_ gr_w. Pr_f_ss_r L_ng b_l__v_s th_s c__ld
h_lp th_ w_rld's f__d n__ds. H_ s__d _f h_ c__ld g_t
20 p_r c_nt m_r_ f__d fr_m cr_ps, "th_t w__ld gr__tly
[r_d_c_] wh_t w_ s__ _s th_ f_t_r_ pr_ss_r _n f__d
s_pply".

PUNCTUATE THE TEXT AND ADD CAPITALS

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

plant biologists have thought of a clever new way to increase the size of crops by as much as 20 per cent they have genetically modified part of the mechanism in plants that is responsible for photosynthesis of course photosynthesis is the most important chemical reaction in the world it is the process where plants use sunlight to change carbon dioxide into oxygen this means we can all breathe the scientists have found a way for plants to use the energy they get from sunlight better so they grow bigger and produce more food lead researcher professor stephen long said his team is genetically modifying staple crops such as rice wheat maize and soybean – the world's biggest crops

the scientists targeted the mechanism that plants use to protect themselves from damage when the sun's rays are too strong to prevent damage plants turning their energy into heat which disappears into the air however this heat-loss process continues even when clouds block the sun the scientists put extra copies of the heat-loss genes into modified plants these additional copies speed up the heat-loss process so the plants can more quickly return to using energy to grow professor long believes this could help the world's food needs he said if he could get 20 per cent more food from crops "that would greatly [reduce] what we see as the future pressure on food supply"

PUT A SLASH (/) WHERE THE SPACES ARE

From <http://www.BreakingNewsEnglish.com/1611/161119-photosynthesis.html>

Plantbiologists havethoughtofaclevernewwaytoincreasethe sizeofcrops byasmuchas20percent.Theyhavegeneticallymodifiedpartofthem echanism inplantsthat isresponsibleforphotosynthesis.Ofcourse,pho tosynthesisisthemostimportantchemicalreactionintheworld.Itisthe processwhereplantsusesunlighttochangecarbondioxideintooxygen. Thismeanswecanallbreathe.Thescientistshavefoundawayforplantst ousetheenergytheygetfromsunlightbetter,sotheygrowbiggerandpr oducemorefood.LeadresearcherProfessorStephenLongsaidhisteami sgeneticallymodifyingstaplecropssuchasrice,wheat,maizeandsoybe an–theworld'sbiggestcrops.Thescientiststargetedthamechanismth atplantsusetoprotectthemselvesfromdamagewhentheSun'sraysare toostrong.Topreventdamage,plantsturntheirenergyintoheat,which disappearsintotheair.However,thisheat-lossprocesscontinueseve nwhencloudsblocktheSun.Thescientistsputextracopiesoftheheat-l ossgenesintomodifiedplants.Theseadditionalcopies speeduptheheat -lossprocesssotheplantscanmorequicklyreturntousingenergytogro w.ProfessorLongbelievesthis couldhelpthe world's food needs.Hesaidi fhecouldget20percentmorefoodfromcrops,"thatwouldgreatly[reduc e]whatweseeasthefuturepressureonfoodsupply".

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 genetically modified (GM) plants. Share what you discover with your partner(s) in the next lesson.

3. PLANTS: Make a poster about genetically modified (GM) plants. Show your work to your classmates in the next lesson. Did you all have similar things?

4. GM: Write a magazine article about genetically modified (GM) plants. Include imaginary interviews with people who are for and against them.

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 plants. Ask him/her three questions about GM plants. Give him/her three of your ideas on how to feed the world. 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. clever | a. smart |
| 2. mechanism | b. process |
| 3. change | c. transform |
| 4. found | d. discovered |
| 5. produce | e. grow |
| 6. damage | f. harm |
| 7. continues | g. goes on |
| 8. additional | h. extra |
| 9. believes | i. thinks |
| 10. reduce | j. cut |

COMPREHENSION QUESTIONS (p.8)

1. Plant biologists
2. Photosynthesis
3. Sunlight
4. Crops / Food
5. Staple crops
6. The Sun's strong rays
7. The air
8. To grow
9. Professor Long
10. Food supply

MULTIPLE CHOICE - QUIZ (p.9)

1. a 2. c 3. b 4. d 5. a 6. d 7. b 8. d 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 ;-)