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Level 6 – 27th November, 2018

Dim the Sun to limit global warming, say scientists

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<https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

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Please try Levels 4 and 5 (they are easier).

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THE ARTICLE

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

Scientists have come up with a revolutionary new idea to save planet Earth from global warming. Geo-engineers from Harvard University believe that spraying "sun-dimming" chemicals into the stratosphere high above the Earth could slow down global warming. They also say their technique would be "remarkably inexpensive," costing in the region of \$2.25 billion a year over a 15-year period. The technique is known as stratospheric aerosol injection (SAI). It is still in its infancy and is yet to be proven. It would involve the use of gigantic hoses or high-powered chemical cannons to spray chemicals into the stratosphere to act as a reflective barrier against sunlight and harmful UV rays.

The scientists have admitted that their idea is currently still in the planning stages. They said: "We make no judgment about the desirability of SAI. We simply show that a hypothetical deployment program commencing 15 years hence, while both highly uncertain and ambitious, would indeed be technically possible from an engineering perspective." Not all scientists think the idea is a good one. Some think it is somewhat pie in the sky. They say it would require a fleet of 100 specially-designed planes to make 4,000 missions a year, crossing most of the globe's airspace. This would require permission from over 100 governments. There are also concerns it could increase droughts and extreme weather.

Sources: <https://science.slashdot.org/story/18/11/23/2016234/controversial-spraying-sun-dimming-method-aims-to-curb-global-warming>
<https://nypost.com/2018/11/23/sun-dimming-chemicals-could-solve-climate-change-on-the-cheap/>
<https://physicsworld.com/a/could-an-anti-global-warming-atmospheric-spraying-program-really-work/>

WARM-UPS

1. GLOBAL WARMING: Students walk around the class and talk to other students about global warming. 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 / revolutionary / global warming / chemicals / technique / barrier / UV rays / planning / judgment / hypothetical / ambitious / pie / missions / permission / drought

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

3. SUN DIMMING: Students A **strongly** believe sun dimming is a workable idea; Students B **strongly** believe it isn't. Change partners again and talk about your conversations.

4. SAVING PLANET EARTH: How do we do it? What do you think of these ideas? Complete this table with your partner(s). Change partners often and share what you wrote.

	Good idea?	Why / Why not?
Sun dimming		
Solar energy		
Electric cars		
Veganism		
Grow your own food		
Walk everywhere		

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

6. EXTREME WEATHER: Rank these with your partner. Put the worst weather events at the top. Change partners often and share your rankings.

- droughts
- hurricanes
- blizzards
- floods
- heat waves
- forest fires
- rising sea levels
- tornados

VOCABULARY MATCHING

Paragraph 1

- | | |
|---------------------|--|
| 1. come up with | a. To a surprising degree; in a way that is worthy of attention. |
| 2. revolutionary | b. Push or force a liquid or gas (especially a drug or vaccine) into a person or animal's body or something else with a syringe or similar device. |
| 3. remarkably | c. Think of a new idea. |
| 4. in the region of | d. Involving or causing a complete or dramatic change. |
| 5. aerosol | e. About; approximately. |
| 6. injection | f. a substance enclosed under pressure and able to be released as a fine spray; a container holding an aerosol. |
| 7. barrier | g. A fence or other obstacle that prevents movement or access to or over something. |

Paragraph 2

- | | |
|--------------------|--|
| 8. judgment | h. A particular attitude toward or way of regarding something; a point of view. |
| 9. desirability | i. The ability to make considered decisions or come to sensible conclusions. |
| 10. hypothetical | j. Having or showing a strong desire and determination to succeed. |
| 11. ambitious | k. Something that is nice to think about but is very unlikely to happen. |
| 12. perspective | l. The quality of being wanted, or of being attractive. |
| 13. pie in the sky | m. A prolonged period of abnormally low rainfall, leading to a shortage of water. |
| 14. droughts | n. An explanation or theory made on the basis of limited evidence as a starting point for further investigation. |

BEFORE READING / LISTENING

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

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

- a. Scientists say they can revolutionize how the Earth is warmed globally. **T / F**
- b. The scientists are geo-engineers from Harvard University. **T / F**
- c. Scientists want to slow down the earth to dim the Sun's UV rays. **T / F**
- d. Scientists say giant hoses will spray chemicals into the stratosphere. **T / F**
- e. The sun-dimming plan is in the final stages of planning. **T / F**
- f. The scientists say it's possible to use their technique in 15 years' time. **T / F**
- g. Some scientists believe the sun-dimming idea is pie in the sky. **T / F**
- h. Other scientists said sun-dimming could help to end all droughts. **T / F**

2. SYNONYM MATCH:

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

- | | |
|----------------------------|------------------|
| 1. revolutionary | a. approximately |
| 2. technique | b. acknowledged |
| 3. in the region of | c. damaging |
| 4. infancy | d. severe |
| 5. harmful | e. a bit |
| 6. admitted | f. early stages |
| 7. desirability | g. innovative |
| 8. somewhat | h. trips |
| 9. missions | i. appeal |
| 10. extreme | j. method |

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

- | | |
|---|-------------------------------|
| 1. Scientists have come up with a | a. infancy |
| 2. their technique would be | b. from over 100 governments |
| 3. It is still in its | c. against sunlight |
| 4. spray chemicals into | d. planning stages |
| 5. a reflective barrier | e. and extreme weather |
| 6. their idea is currently still in the | f. revolutionary new idea |
| 7. technically possible from | g. missions a year |
| 8. make 4,000 | h. remarkably inexpensive |
| 9. require permission | i. the stratosphere |
| 10. it could increase droughts | j. an engineering perspective |

GAP FILL

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

Scientists have come up with a (1) _____ new idea to save planet Earth from global warming. Geo-engineers from Harvard University believe that (2) _____ "sun-dimming" chemicals into the stratosphere high above the Earth could slow down global warming. They also say their (3) _____ would be "remarkably inexpensive," costing in the (4) _____ of \$2.25 billion a year over a 15-year period. The technique is known as stratospheric (5) _____ injection (SAI). It is still in its infancy and is yet to be (6) _____. It would involve the use of gigantic (7) _____ or high-powered chemical cannons to spray chemicals into the stratosphere to act as a reflective (8) _____ against sunlight and harmful UV rays.

technique
proven
barrier
revolutionary
region
hoses
spraying
aerosol

The scientists have admitted that their idea is (9) _____ still in the planning stages. They said: "We make no judgment about the (10) _____ of SAI. We simply show that a hypothetical deployment program commencing 15 years (11) _____, while both highly uncertain and ambitious, would indeed be (12) _____ possible from an engineering perspective." Not all scientists think the idea is a good one. Some think it is somewhat (13) _____ in the sky. They say it would require a fleet of 100 specially-designed planes to make 4,000 (14) _____ a year, crossing most of the globe's airspace. This would (15) _____ permission from over 100 governments. There are also concerns it could increase droughts and (16) _____ weather.

technically
desirability
missions
currently
extreme
pie
hence
require

LISTENING – Guess the answers. Listen to check.

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

- 1) Geo-engineers from Harvard University believe that spraying _____
 - a. "sun-dam in" chemical
 - b. "sun-damming" chemicals
 - c. "sun-dim in" chemicals
 - d. "sun-dimming" chemicals
- 2) They also say their technique would be _____
 - a. remarkable in expensive
 - b. remarkably in expansive
 - c. remarkably inexpensive
 - d. remarkably in expends it
- 3) The technique is known as stratospheric _____
 - a. aero sold injection
 - b. air a sold injection
 - c. air a soul injection
 - d. aerosol injection
- 4) gigantic hoses or high-powered chemical cannons to spray chemicals _____
 - a. into the stratosphere
 - b. into the atmosphere
 - c. into the starter sphere
 - d. into the slats of sphere
- 5) act as a reflective barrier against sunlight and _____
 - a. harmfully UV raids
 - b. harmed full UB rays
 - c. harmful UB raids
 - d. harmful UV rays
- 6) The scientists have admitted that their idea is currently still in _____
 - a. the plan in stages
 - b. the planning stages
 - c. the plane in stages
 - d. the panning stages
- 7) be technically possible from an _____
 - a. engineering per specter
 - b. engineering perspectives
 - c. engineering perspective
 - d. engineering per sectors
- 8) Some think it is somewhat _____
 - a. spy inner sky
 - b. pies on the sky
 - c. pie inner sky
 - d. pie in the sky
- 9) planes to make 4,000 missions a year, crossing most of _____
 - a. the globe's airspace
 - b. the globe stair space
 - c. the globe says space
 - d. the globe's airs pace
- 10) There are also concerns it could increase droughts _____
 - a. and extremely weather
 - b. and extreme weather
 - c. and extremely weathered
 - d. and extreme weathered

LISTENING – Listen and fill in the gaps

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

Scientists (1) _____ with a revolutionary new idea to save planet Earth from global warming. Geo-engineers from Harvard University believe that spraying "sun-dimming" (2) _____ stratosphere high above the Earth could slow down global warming. They also say their technique would be "remarkably inexpensive," (3) _____ region of \$2.25 billion a year over a 15-year period. The technique is known as stratospheric aerosol injection (SAI). It is still (4) _____ and is yet to be proven. It would involve the use of gigantic hoses or high-powered chemical cannons to spray (5) _____ stratosphere to act as a reflective (6) _____ and harmful UV rays.

The scientists have admitted that their (7) _____ still in the planning stages. They said: "We make no judgment (8) _____ of SAI. We simply show that a hypothetical deployment program commencing (9) _____, while both highly uncertain and ambitious, would indeed be technically possible from an engineering perspective." Not all scientists think the idea is a good one. Some think it is somewhat (10) _____ sky. They say it would require a fleet of 100 specially-designed planes to make 4,000 missions a year, crossing most of (11) _____. This would require permission from over 100 governments. There are also concerns it could increase (12) _____ weather.

COMPREHENSION QUESTIONS

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

1. What kind of scientists came up with the sun-dimming plan?
2. Where would the scientists spray chemicals?
3. How much would the sun-dimming plan cost?
4. What would spray the chemicals?
5. What would the chemicals act as?
6. Where did the scientists say their idea is?
7. When might sun dimming be implemented?
8. What did more doubtful scientists call the idea?
9. How many missions might specially-designed planes have to make?
10. What do more skeptical scientists say could increase?

MULTIPLE CHOICE - QUIZ

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

- 1) What kind of scientists came up with the sun-dimming plan?
 - a) cosmos engineers
 - b) geo-engineers
 - c) astro-engineers
 - d) bio-engineers
- 2) Where would the scientists spray chemicals?
 - a) behind the clouds
 - b) into the atmosphere
 - c) as far away as Mars
 - d) into the stratosphere
- 3) How much would the sun-dimming plan cost?
 - a) \$2.5 billion a year
 - b) \$2.25 billion a year
 - c) \$22 billion a year
 - d) \$25 billion a year
- 4) What would spray the chemicals?
 - a) gigantic hoses
 - b) aerosol cans
 - c) a special missile launcher
 - d) rockets
- 5) What would the chemicals act as?
 - a) a UV ray
 - b) a reflective barrier
 - c) a defective barrier
 - d) a solar barrier
- 6) Where did the scientists say their idea is?
 - a) in the planning stages
 - b) up in the air
 - c) in a scientist's inbox
 - d) with the government
- 7) When might sun dimming be implemented?
 - a) 2050
 - b) in the next century
 - c) in 15 years from now
 - d) 2025
- 8) What did more doubtful scientists call the idea?
 - a) pie in the sky
 - b) a pipe dream
 - c) stratospheric
 - d) like cheese on the Moon
- 9) How many missions might specially-designed planes have to make?
 - a) 5,000
 - b) 6,000
 - c) 3,000
 - d) 4,000
- 10) What do more skeptical scientists say could increase?
 - a) boughs
 - b) coughs
 - c) droughts
 - d) draughts

ROLE PLAY

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

Role A – Droughts

You think droughts are the worst weather events. Tell the others three reasons why. Tell them why their events aren't as bad. Also, tell the others which is the least dangerous of these (and why): hurricanes, heat waves or floods.

Role B – Hurricanes

You think hurricanes are the worst weather events. Tell the others three reasons why. Tell them why their events aren't as bad. Also, tell the others which is the least dangerous of these (and why): droughts, heat waves or floods.

Role C – Heat Waves

You think heat waves are the worst weather events. Tell the others three reasons why. Tell them why their events aren't as bad. Also, tell the others which is the least dangerous of these (and why): hurricanes, droughts or floods.

Role D – Floods

You think floods are the worst weather events. Tell the others three reasons why. Tell them why their events aren't as bad. Also, tell the others which is the least dangerous of these (and why): hurricanes, heat waves or droughts.

AFTER READING / LISTENING

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

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

global	warming
---------------	----------------

- 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">• come• high• region• known• yet• against	<ul style="list-style-type: none">• stages• make• show• possible• 4,000• also
--	--

GLOBAL WARMING SURVEY

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

Write five GOOD questions about global warming 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.

GLOBAL WARMING 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 'global'?
3. What do you think of the idea of sun dimming?
4. Do you think sun dimming would work?
5. How serious a problem is global warming?
6. What do you know about global warming?
7. How has global warming affected you?
8. How has global warming affected your country?
9. How much do you worry about global warming?
10. What harm can UV rays do?

Dim the Sun to limit global warming, say scientists – 27th November, 2018
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GLOBAL WARMING 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 'sun'?
13. What do you think about what you read?
14. How likely is it that sun dimming will go ahead?
15. What other ideas do you think are "pie in the sky"?
16. Would the world agree to sun dimming?
17. What would happen if sun dimming cooled our planet?
18. What extreme weather might sun dimming bring?
19. What are your ideas to reduce global warming?
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)

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 <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

Scientists have come (1) _____ with a revolutionary new idea to save planet Earth from global warming. Geo-engineers from Harvard University (2) _____ that spraying "sun-dimming" chemicals into the stratosphere (3) _____ above the Earth could slow down global warming. They also say their technique would be "remarkably inexpensive," costing (4) _____ the region of \$2.25 billion a year over a 15-year period. The technique is known as stratospheric aerosol injection (SAI). It is still in its (5) _____ and is yet to be proven. It would involve the use of gigantic hoses or high-powered chemical cannons to spray chemicals into the stratosphere to act as a reflective barrier against sunlight and (6) _____ UV rays.

The scientists have (7) _____ that their idea is currently still in the planning stages. They said: "We make no judgment about the (8) _____ of SAI. We simply show that a hypothetical deployment program commencing 15 years (9) _____, while both highly uncertain and ambitious, would indeed be technically possible from an engineering perspective." Not all scientists think the idea is a good one. Some think it is somewhat (10) _____ in the sky. They say it would require a (11) _____ of 100 specially-designed planes to make 4,000 missions a year, crossing most of the globe's airspace. This would require permission from over 100 governments. There are also concerns it could increase droughts and (12) _____ weather.

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

- | | | | | |
|-----|------------------|---------------|--------------|---------------|
| 1. | (a) in | (b) up | (c) on | (d) down |
| 2. | (a) believing | (b) believer | (c) belief | (d) believe |
| 3. | (a) height | (b) high | (c) up | (d) increase |
| 4. | (a) on | (b) at | (c) in | (d) as |
| 5. | (a) infancy | (b) childhood | (c) babyhood | (d) primary |
| 6. | (a) harmful | (b) harmed | (c) harm | (d) harms |
| 7. | (a) permitted | (b) committed | (c) remitted | (d) admitted |
| 8. | (a) desirability | (b) desires | (c) desire | (d) desirable |
| 9. | (a) once | (b) hence | (c) ounce | (d) chance |
| 10. | (a) tart | (b) donut | (c) pie | (d) cookie |
| 11. | (a) sleet | (b) bleat | (c) fleet | (d) pleat |
| 12. | (a) extremity | (b) extreme | (c) extremes | (d) extremely |

SPELLING

Paragraph 1

1. a luoeorviyatrn new idea
2. "sun-dimming" lccmehsai
3. into the srhttpasroe high above the Earth
4. their echquntei would be remarkably inexpensive
5. sroaelo injection
6. a fevlirteec barrier

Paragraph 2

7. We make no ungdtjme
8. a pyhehltaocti deployment program
9. uncertain and mobtiuisa
10. This would require prsoniimse
11. it could increase utgrdsho
12. eeexrmt weather

PUT THE TEXT BACK TOGETHER

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

Number these lines in the correct order.

- () engineers from Harvard University believe that spraying "sun-dimming" chemicals into the
- () be "remarkably inexpensive," costing in the region of \$2.25 billion a year over a 15-year
- (**1**) Scientists have come up with a revolutionary new idea to save planet Earth from global warming. Geo-
- () The scientists have admitted that their idea is currently still in the planning stages. They said:
- () period. The technique is known as stratospheric aerosol injection (SAI). It is still in its infancy and is yet to be
- () into the stratosphere to act as a reflective barrier against sunlight and harmful UV rays.
- () missions a year, crossing most of the globe's airspace. This would require permission from
- () in the sky. They say it would require a fleet of 100 specially-designed planes to make 4,000
- () possible from an engineering perspective." Not all scientists think the idea is a good one. Some think it is somewhat pie
- () "We make no judgment about the desirability of SAI. We simply show that a hypothetical deployment program commencing
- () stratosphere high above the Earth could slow down global warming. They also say their technique would
- () 15 years hence, while both highly uncertain and ambitious, would indeed be technically
- () proven. It would involve the use of gigantic hoses or high-powered chemical cannons to spray chemicals
- () over 100 governments. There are also concerns it could increase droughts and extreme weather.

PUT THE WORDS IN THE RIGHT ORDER

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

1. up a come Scientists revolutionary idea . with have
2. into chemicals Spraying the "sun-dimming" stratosphere .
3. stratospheric The injection . known is as technique aerosol
4. chemical High-powered cannons to spray chemicals .
5. act a against sunlight . barrier as reflective To
6. planning in the currently stages . Their is idea
7. about judgment the no We make desirability .
8. the think a good one . idea is Scientists
9. think the it pie is sky . Some in
10. are droughts . increase also concerns There could it

CIRCLE THE CORRECT WORD (20 PAIRS)

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

Scientists have come *down / up* with a revolutionary new idea to save planet Earth from global warming. Geo-engineers from Harvard University *belief / believe* that spraying "sun-dimming" chemicals *unto / into* the stratosphere high above the Earth could slow *down / downed* global warming. They also say their technique would be "*remarkable / remarkably* inexpensive," costing in the region of \$2.25 billion a year *over / under* a 15-year period. The technique is known *was / as* stratospheric aerosol injection (SAI). It is still in its *infancy / infants* and is yet to be proven. It would involve the use of gigantic *hose / hoses* or high-powered chemical cannons to spray chemicals into the stratosphere to act as a reflective barrier against *sunlit / sunlight* and harmful UV rays.

The scientists have *admitted / admission* that their idea is currently still in the planning *stages / staggers*. They said: "We make no *judgment / judge* about the desirability of SAI. We simply *show / shown* that a hypothetical deployment program commencing 15 years *once / hence*, while both highly uncertain and ambitious, would indeed be technically possible from an engineering perspective." Not all scientists think the *idea / idealism* is a good one. Some think it is somewhat *spy / pie* in the sky. They say it would require a *fleet / fleece* of 100 specially-designed planes to make 4,000 missions a year, crossing most of the globe's airspace. This would *requirement / require* permission from over 100 governments. There are also concerns it could increase *draughts / droughts* and extreme weather.

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 <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

Sc__ n t_s t s h_v_ c_m_ _p w_t h _ r_v_l_t__ n_r y
n_w _d__ t_ s_v_ p_l_n_t E_r t h f_r_m g_l_b_l w_r
m_n g . G__ -_n g_n__ r s f_r_m H_r v_r d U_n_v_r s_t
y b_l__ v_ t_h_t s_p_r_y_n_g " s_n - d_m m_n g " c
h_m_c_l s _n t_ t_h_ s_t_r_t_s_p_h_r_ h_g h _b_v_ t_h_
E_r t h c__ l d s_l_w d_w_n g_l_b_l w_r m_n g . T
h_y _l s_ s_y t_h__ r t_c_h_n_q__ w__ l d b_ " r_m_r
k_b_l y _n_x_p_n_s_v_ , " c_s_t_n_g _n t_h_ r_g__ n _f
\$ 2 . 2 5 b_l_l__ n _ y__ r _v_r _ 1 5 - y__ r p_r__ d
. T_h_ t_c_h_n_q__ _s k_n_w_n _s s_t_r_t_s_p_h_r_c __
r_s_l _n_j_c_t__ n (S A I) . I_t _s s_t_l_l _n_t_s _n
f_n_c_y _n d _s y_t t_ b_ p_r_v_n . I_t w__ l d _n
v_l_v_ t_h_ s_ _f g_g_n_t_c h_s_s _r h_g h - p_w_r_d
c_h_m_c_l c_n_n_n_s t_ s_p_r_y c_h_m_c_l s _n t_ t_h_
s_t_r_t_s_p_h_r_ t_ c_t _s _ r_f_l_c_t_v_ b_r_r__ r _g__
n_s_t s_n_l_g_h_t _n d h_r_m_f_l U V r_y s .

T_h_ s_c__ n t_s t s h_v_ _d m_t t_d t_h_t t_h__ r _d__
_s c_r_r_n_t_l_y s_t_l_l _n t_h_ p_l_n_n_n_g s_t_g_s .
T_h_y s__ d : " W_ m_k_ n_ j_d_g_m_n_t _b__ t t_h_
d_s_r_b_l_t_y _f S A I . W_ s_m_p_l_y s_h_w t_h_t _
h_y_p_t_h_t_c_l d_p_l_y_m_n_t p_r_g_r_m c_m_m_n_c_n_g
1 5 y__ r s h_n_c_ , w_h_l_ b_t_h h_g h_l_y _n_c_r_t__
n _n d _m_b_t__s , w__ l d _n d__ d b_ t_c_h_n_c_l_l
y p_s_s_b_l_ f_r_m _n _n_g_n__ r_n_g p_r_s_p_c_t_v_ . "
N_t _l_l s_c__ n t_s t s t_h_n_k t_h_ _d__ _s _g__ d
n . S_m_ t_h_n_k _t _s s_m_w_h_t p__ _n t_h_ s_k
y . T_h_y s_y _t w__ l d r_q__ r_ _f_l__ t _f 1 0 0
s_p_c__ l_l_y - d_s_g_n_d p_l_n_s t_ m_k_ 4 , 0 0 0
m_s_s__ n_s _ y__ r , c_r_s_s_n_g m_s_t _f t_h_ g
l_b_'s __ r_s_p_c_ . T_h_s w__ l d r_q__ r_ p_r_m_s
s__ n f_r_m _v_r 1 0 0 g_v_r_n_m_n_t_s . T_h_r_ _r_ l
s_ c_n_c_r_n_s _t c__ l d _n_c_r__ s_ d_r__ g_h_t_s _n d
_x_t_r_m_ w__ t_h_r_ .

PUNCTUATE THE TEXT AND ADD CAPITALS

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

scientists have come up with a revolutionary new idea to save planet earth from global warming geo engineers from harvard university believe that spraying sun dimming chemicals into the stratosphere high above the earth could slow down global warming they also say their technique would be remarkably inexpensive costing in the region of 225 billion a year over a 15year period the technique is known as stratospheric aerosol injection sai it is still in its infancy and is yet to be proven it would involve the use of gigantic hoses or high powered chemical cannons to spray chemicals into the stratosphere to act as a reflective barrier against sunlight and harmful uv rays

the scientists have admitted that their idea is currently still in the planning stages they said we make no judgment about the desirability of sai we simply show that a hypothetical deployment program commencing 15 years hence while both highly uncertain and ambitious would indeed be technically possible from an engineering perspective not all scientists think the idea is a good one some think it is somewhat pie in the sky they say it would require a fleet of 100 specially designed planes to make 4000 missions a year crossing most of the globes airspace this would require permission from over 100 governments there are also concerns it could increase droughts and extreme weather.

PUT A SLASH (/) WHERE THE SPACES ARE

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

Scientists have come up with a revolutionary new idea to save planet Earth from global warming. Geo-engineers from Harvard University believe that spraying "sun-dimming" chemicals into the stratosphere might help the Earth slow down global warming. They also say their technique would be "remarkably inexpensive," costing in the region of \$2.25 billion a year over a 15-year period. The technique is known as stratospheric aerosol injection (SAI). It is still in its infancy and is yet to be proven. It would involve the use of giant chimneys or high-powered chemical cannons to spray chemicals into the stratosphere to act as a reflective barrier against sunlight and harmful UV rays. The scientists have admitted that their idea is currently still in the planning stages. They said: "We make no judgment about the desirability of SAI. We simply show that a hypothetical deployment program commencing 15 years hence, while both highly uncertain and ambitious, would indeed be technically possible from an engineering perspective." Not all scientists think the idea is a good one. Some think it is somewhat pie in the sky. They say it would require a fleet of 100 specially-designed planes to make 4,000 missions a year, crossing most of the globe's airspace. This would require permission from over 100 governments. There are also concerns it could increase droughts and extreme weather.

ACADEMIC WRITING

From <https://breakingnewsenglish.com/1811/181127-sun-dimming.html>

We will never be able to limit the effects of global warming. 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 this news story. Share what you discover with your partner(s) in the next lesson.

3. GLOBAL WARMING: Make a poster about global warming. Show your work to your classmates in the next lesson. Did you all have similar things?

4. SUN DIMMING: Write a magazine article about sun dimming. Include imaginary interviews with people who are for and against this.

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 global warming. Ask him/her three questions about it. Give him/her three of your ideas on how to deal with global warming. Read your letter to your partner(s) in your next lesson. Your partner(s) will answer your questions.

ANSWERS

VOCABULARY (p.4)

1. c 2. d 3. a 4. e 5. f 6. b 7. g
8. i 9. l 10. n 11. j 12. h 13. k 14. m

TRUE / FALSE (p.5)

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

SYNONYM MATCH (p.5)

- | | |
|---------------------|------------------|
| 1. revolutionary | a. innovative |
| 2. technique | b. method |
| 3. in the region of | c. approximately |
| 4. infancy | d. early stages |
| 5. harmful | e. damaging |
| 6. admitted | f. acknowledged |
| 7. desirability | g. appeal |
| 8. somewhat | h. a bit |
| 9. missions | i. trips |
| 10. extreme | j. severe |

COMPREHENSION QUESTIONS (p.9)

1. Geo-engineers
2. Into the stratosphere
3. \$2.25 billion a year
4. Gigantic hoses and chemical cannons
5. A reflective barrier
6. In the planning stages
7. In 15 years' time
8. Pie in the sky
9. 4,000
10. Droughts and extreme weather

WORDS IN THE RIGHT ORDER (p.20)

1. Scientists have come up with a revolutionary idea.
2. Spraying "sun-dimming" chemicals into the stratosphere.
3. The technique is known as stratospheric aerosol injection.
4. High-powered chemical cannons to spray chemicals.
5. To act as a reflective barrier against sunlight.
6. Their idea is currently in the planning stages.
7. We make no judgment about the desirability.
8. Scientists think the idea is a good one.
9. Some think it is pie in the sky.
10. There are also concerns it could increase droughts.

MULTIPLE CHOICE - QUIZ (p.10)

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

ALL OTHER EXERCISES

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