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Level 6 – 5th February 2024 Artificial light is dangerous for insects, say scientists

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https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

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

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THE ARTICLE

From https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

Everyone knows that light attracts insects. In prehistoric times, our ancestors questioned why winged insects buzzed around fire. An old saying describes this attraction as being, "like a moth to a flame". However, a recent study dispels the long-believed notion that insects head towards light because they like it. Biologists at Imperial College London have reported that insects are drawn to light because it helps with their orientation when in flight. The scientists said artificial light actually disorients nocturnal bugs like moths and mosquitos, often to fatal ends. Jamie Theobald, co-author of the study, said all our speculations about why insects fly toward light "might have been wrong".

The scientists conducted their research in a rainforest in Costa Rica. They installed artificial lights under the canopy and observed the creatures' flying behaviour. Insects usually navigate by the moon to fly in straight lines. However, around the artificial lights, the bugs became confused and made arcs and erratic patterns of flight. An entomologist said: "Natural sky light...helps maintain proper flight....Artificial sources...can produce continuous steering around the light and trap an insect." This explains why so many insects fly to their death into bug zappers. Artificial light adversely affects an insect's ability to find a mate, forage for food, and defend itself against predators.

Sources: https://www.imperial.ac.uk/news/251217/flying-insects-become-disorientated-trapped-artificial/https://gizmodo.com/why-insects-bugs-fly-around-artificial-lights-1851216660

https://www.nature.com/articles/s41467-024-44785-3

WARM-UPS

- **1. NOCTURNAL INSECTS:** Students walk around the class and talk to other students about nocturnal insects. 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?

everyone / light / insects / prehistoric times / ancestors / attraction / nocturnal / rainforest / artificial / canopy / entomologist / bug zapper / mate / forage / predator

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

- **3. LIGHTS OUT:** Students A **strongly** believe we should turn off lights at night to help protect nocturnal insects; Students B **strongly** believe the opposite. Change partners again and talk about your conversations.
- **4. INSECT SAYINGS:** What do these sayings mean? Do they have any relevance to your life? Complete this table with your partner(s). Change partners often and share what you wrote.

	Meaning	Your Life
Social butterfly		
To be a fly on the wall		
Snug as a bug in a rug		
A can of worms		
Bugbear		
The birds and the bees		

- **5. MOTH:** Spend one minute writing down all of the different words you associate with the word "moth". Share your words with your partner(s) and talk about them. Together, put the words into different categories.
- **6. NOCTURNAL:** Rank these with your partner. Put the best things about being a night owl at the top. Change partners often and share your rankings.
 - Life is quieter
 - Get more work done
 - Empty streets
 - Off-peak electricity

- No sunburn
- Avoid rush hours
- Seeing the stars
- Avoid people

VOCABULARY MATCHING

Paragraph 1

- 1. prehistoric a. Relating to or denoting the period before written records.
- 2. ancestors b. Done, occurring, or active at night.
- 3. flame c. A person, typically one more remote than a grandparent, from whom one is descended.
- 4. dispel d. The relative position or direction of something.
- 5. orientation e. A hot glowing body of ignited gas that is generated by something on fire.
- 6. nocturnal f. Make a doubt, feeling, or belief disappear.
- 7. speculation g. The forming of a theory or idea without firm evidence.

Paragraph 2

- 8. creature h. In a way that prevents success or development; harmfully or unfavourably.
- 9. navigate i. An electronic device used for killing insects.
- 10. erratic j. An animal, as distinct from a human being.
- 11. zapper k. Of a person or animal searching widely for food.
- 12. adversely l. Of an animal finding its way.
- 13. forage m. An animal that naturally hunts and kills others.
- 14. predator n. Not even or regular in pattern or movement; unpredictable.

BEFORE READING / LISTENING

From https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

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

- 1. In prehistoric times, our ancestors buzzed around fires. **T/F**
- 2. There is a saying in English that goes, "Like a flame to a moth". **T / F**
- 3. Scientists say insects do not fly to light because they like the light. T / F
- 4. Scientists say artificial light can be deadly for nocturnal insects. **T / F**
- 5. Scientists put artificial lights in a tent in a Costa Rica rainforest. **T/F**
- 6. Nocturnal insects use the sun to navigate while flying. **T / F**
- 7. The light from bug zappers entice bugs to their death. **T/F**
- 8. Artificial light makes it difficult for insects to protect themselves. **T/F**

2. SYNONYM MATCH: (The words in **bold** are from the news article.)

- 1. ancestors
- 2. dispels
- 3. notion
- 4. fatal
- 5. speculations
- 6. conducted
- 7. artificial
- 8. erratic
- 9. adversely
- 10. forage

- a. carried out
- b. unpredictable
- . theorizing
- d. hunt
- e. belief
- f. negatively
- g. predecessors
- h. synthetic
- i. dismisses
- i. deadly

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

- 1. In prehistoric
- 2. our ancestors questioned why winged
- 3. a recent study dispels the
- 4. it helps with their orientation
- 5. nocturnal bugs
- 6. They installed artificial lights
- 7. navigate by the moon
- 8. erratic
- 9. many insects fly to their death
- 10. forage

- a. patterns of flight
- b. when in flight
- c. under the canopy
- d. times
- e. into bug zappers
- f. like moths and mosquitos
- g. insects buzzed around fire
- h. for food
- i. to fly in straight lines
- j. long-believed notion

GAP FILL

Everyone knows that light attracts insects. In	notion
times, our ancestors questioned why	flight
winged insects buzzed around fire. An old saying describes this	wrong
attraction as being, "like a moth to a (2)".	fatal
However, a recent study dispels the long-believed	
that insects head towards light because	prehistorio
they like it. Biologists at Imperial College London have reported	drawn
that insects are (4) to light because it helps	flame
with their orientation when in (5) The	nocturnal
scientists said artificial light actually disorients	
bugs like moths and mosquitos, often to	
ends. Jamie Theobald, co-author of the	
study, said all our speculations about why insects fly toward light	
"might have been (8)".	
The scientists (9) their research in a rainforest	navigate
in Costa Rica. They installed artificial lights under the canopy and	sources
the creatures' flying behaviour. Insects	conductea
usually (11) by the moon to fly in straight lines.	predators
However, around the artificial lights, the bugs became confused	•
and made arcs and (12) patterns of flight. An	observed
entomologist said: "Natural sky lighthelps maintain proper	forage
flightArtificial (13)can produce continuous	erratic
steering around the light and trap an insect." This explains why so	zappers
many insects fly to their death into bug (14)	
Artificial light adversely affects an insect's ability to find a mate,	
for food, and defend itself against	
(16)	

LISTENING — Guess the answers. Listen to check.

1)	light attracts insects. In prehistoric times, our a. ancestor questioned why b. ancestors question why c. ancestors questioned why
2)	 d. ancestors questioned what An old saying describes this attraction as being, "like a moth" a. to aflame b. to a frame c. tour flame d. to a flame
3)	Biologists at Imperial College London have reported that insects are a. drawn to light b. drown to light c. draw into light d. draw unto light
4)	The scientists said artificial light actually a. disorients nocturnal bugs b. disorient nocturnal bugs c. disorients nocturnal bugs d. disorient nocturnal bugs
5)	Jamie Theobald, co-author of the study, said all our a. speculations abut why b. speculations abet why c. speculations abbot why d. speculations about why
6)	They installed artificial lights under the canopy and observed the a. creatures frying behaviour b. creatures' flying behaviour c. creature's flying behaviour d. creatures' frying behaviour
7)	around the artificial lights, the bugs became confused and made arcs a. and erratic patterns b. and erotic patterns c. and heretic patterns d. and error tick patterns
8)	An entomologist said: "Natural sky lighthelps" a. main train prosper flight b. maintainer proper flight c. maintain prosper flight d. maintain proper flight
9)	Artificial sourcescan produce continuous steering around the light and a. entrap an insect b. strap an insect c. trap an insect d. trapse an insect
10	Artificial light adversely affects an insect's ability to find a mate,
•	a. voyage for food
	b. forage for foodc. porridge for food
	d. courage for food

LISTENING – Listen and fill in the gaps

 $\textbf{From} \quad \underline{\text{https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html}}$

. In prehistoric times, our
around fire. An old
, "like a moth to a flame".
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at Imperial College London
ecause it helps with their
said artificial light actually
and mosquitos, often
uthor of the study, said all
light "might have been
forest in Costa Rica. They
the creatures'
moon to fly in
lights, the bugs became
patterns of flight. An
ain proper flightArtificial
the light and trap an
cts fly to their death
ersely affects an insect's
food, and defend

COMPREHENSION QUESTIONS

1.	When did our ancestors ask why fire attracted moths?
2.	What old saying did the article mention?
3.	Which university carried out this study?
4.	What did the scientists say light helped insects with?
5.	What did the scientists say artificial light disorientates?
6.	Where did the scientists carry out their research?
7.	What do insects usually use to navigate?
8.	What kind of flight patterns do insects make around artificial light?
9.	What do insects fly into that results in their death?
10.	What does artificial light make it difficult for insects to forage for?

MULTIPLE CHOICE - QUIZ

- 1) When did our ancestors ask why fire attracted moths?
- a) in the Middle Ages
- b) in prehistoric times
- c) two millennia ago
- d) 1832
- 2) What old saying did the article mention?
- a) butterflies in your stomach
- b) can of worms
- c) snug as a bug in a rug
- d) like a moth to a flame
- 3) Which university carried out this study?
- a) Oxford University
- b) Cambridge University
- c) Imperial College London
- d) UCLA
- 4) What did the scientists say light helped insects with?
- a) their orientation
- b) finding food
- c) seeing other moths
- d) avoiding spiderwebs
- 5) What did the scientists say artificial light disorientates?
- a) drivers
- b) nocturnal bugs
- c) worms
- d) night owls

- 6) Where did the scientists carry out their research?
- a) Costa Rica
- b) Cuba
- c) Belize
- d) California
- 7) What do insects usually use to navigate?
- a) electric currents
- b) gravity
- c) the moon
- d) the wind
- 8) What kind of flight patterns do insects make around artificial light?
- a) erratic patterns
- b) holding patterns
- c) direct patterns
- d) beautiful patterns
- 9) What do insects fly into that results in their death?
- a) electricity lines
- b) other insects
- c) wifi towers
- d) bug zappers
- 10) What does artificial light make it difficult for insects to forage for?
- a) worms
- b) mates
- c) food
- d) predators

ROLE PLAY

From https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

Role A - Life Is Quieter

You think life being quieter is the best thing about being a night owl. Tell the others three reasons why. Tell them why their things aren't as good. Also, tell the others which is the worst of these things about being nocturnal (and why): empty streets, off-peak electricity or seeing the stars.

Role B - Empty Streets

You think empty streets are the best thing about being a night owl. Tell the others three reasons why. Tell them why their things aren't as good. Also, tell the others which is the worst of these things about being nocturnal (and why): life being quieter, off-peak electricity or seeing the stars.

Role C – Off-peak Electricity

You think off-peak electricity is the best thing about being a night owl. Tell the others three reasons why. Tell them why their things aren't as good. Also, tell the others which is the worst of these things about being nocturnal (and why): empty streets, life being quieter or seeing the stars.

Role D - See the Stars

You think seeing the stars is the best thing about being a night owl. Tell the others three reasons why. Tell them why their things aren't as good. Also, tell the others which is the worst of these things about being nocturnal (and why): empty streets, off-peak electricity or life being quieter.

AFTER READING / LISTENING

From https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

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

light	insect

- 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:

• everyone	• canopy
• old	 observed
• recent	straight
drawn	• proper
nocturnal	• death
• wrong	• mate

NOCTURNAL INSECTS SURVEY

From https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

Write five GOOD questions about nocturnal insects 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.

NOCTURNAL INSECTS 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 'artificial light'?
- 3. What do you think of artificial light?
- 4. What are the good and bad things about artificial light?
- 5. Do you prefer artificial or natural light?
- 6. How bad is light pollution?
- 7. What do you think of moths?
- 8. What do you think when you see moths buzzing around lights?
- 9. What nocturnal creatures do you like?
- 10. How nocturnal are you?

Artificial light is dangerous for insects, say scientists – 5th February 2024

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NOCTURNAL INSECTS 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 'insect'?
- 13. What do you think about what you read?
- 14. Would you like to do research in a Costa Rican rainforest?
- 15. When was the last time you were confused?
- 16. Would you like to be an entomologist?
- 17. What do you think of bug zappers?
- 18. How does artificial light adversely affect nocturnal insects?
- 19. What can we do to help nocturnal insects?
- 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)

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LANGUAGE - CLOZE

quest attractiong- at In becautight	ctioned ction a believ nperia use it actual	knows that light why (2) it as being, "like a red notion that it led College London helps with their light (5) noct bald, co-author light "might ha	msecton mote mote more more mote mote mote mote mote mote mote mot	ts buzzed arouth to a flame". Its head toward Its reported toward Its	ind fi Howe s ligh hat i in fli hs an	ire. An old say ever, a recent nt because the nsects are draight. The scier and mosquitos, o	ving of study y like awn (antists often	describes this (3) the tit. Biologists (4) light said artificial to fatal ends.
install behave Howe (10) _ proper and t (11) _ for for	lled a viour. ever, a per flig arap a	ists conducted to rtificial lights usually around the artificial solution insect." This exact and defend itself ar correct words from the rect wor	inder	the (8) vigate by the ghts, the bugs entomologist socan produce ins why so mately affects an interest predators.	and moor beca aid: ' cont ny ir nsect'	observed then to fly (9) ame confused a 'Natural sky lig inuous steering asects fly to the as ability to find	e crea sand mand mand the control of the control o	atures' flying straight lines. nade arcs and elps maintain und the light eath into bug ate, (12)
1.	(a)	attacks	(b)	detracts	(c)	infects	(d)	attracts
2.	(a)	winging	(b)	whinging	(c)	singed	(d)	winged
3.	(a)	spells	(b)	dispels	(c)	exhales	(d)	inhales
4.	(a)	up	(b)	of	(c)	to	(d)	in
5.	(a)	disorients	(b)	orients	(c)	reorients	(d)	oriental
6.	(a)	toward	(b)	up	(c)	of	(d)	at
7.	(a)	to	(b)	on	(c)	up	(d)	in
8.	(a)	canopy	(b)	canape	(c)	cantaloupe	(d)	panoply
9.	(a)	up	(b)	in	(c)	at	(d)	of
10.	(a)	erotic	(b)	exotic	(c)	erratic	(d)	elastic
11.	(a)	zippers	(b)	lappers	(c)	zappers	(d)	mappers
12.	(a)	secure	(b)	forage	(c)	deal	(d)	negotiate

SPELLING

From https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

Paragraph 1

- 1. In eiprosctrih times
- 2. our ocaetssnr questioned why
- 3. <u>bltogossii</u> at Imperial College London
- 4. it helps with their aerootninit
- 5. light actually disorients <u>uotnlnrac</u> bugs
- 6. all our <u>oaelstnipcus</u>

Paragraph 2

- 7. They installed <u>riiatfilca</u> lights
- 8. under the yaconp
- 9. <u>ercarit</u> patterns of flight
- 10. bug <u>ezarspp</u>
- 11. light <u>aervedysl</u> affects an insect's ability
- 12. defend itself against <u>dteprosar</u>

PUT THE TEXT BACK TOGETHER

From https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

Number these lines in the correct order.

()	actually disorients nocturnal bugs like moths and mosquitos, often to fatal ends. Jamie Theobald,
()	The scientists conducted their research in a rainforest in Costa Rica. They installed artificial lights under the
()	to a flame". However, a recent study dispels the long-believed notion that insects head
()	reported that insects are drawn to light because it helps with their orientation when in flight. The scientists said artificial light
(1)	Everyone knows that light attracts insects. In prehistoric times, our ancestors questioned why winged
()	sourcescan produce continuous steering around the light and trap an insect." This explains
()	towards light because they like it. Biologists at Imperial College London have
()	in straight lines. However, around the artificial lights, the bugs became confused and made arcs and erratic
()	co-author of the study, said all our speculations about why insects fly toward light "might have been wrong".
()	canopy and observed the creatures' flying behaviour. Insects usually navigate by the moon to fly
()	patterns of flight. An entomologist said: "Natural sky lighthelps maintain proper flightArtificial
()	affects an insect's ability to find a mate, forage for food, and defend itself against predators.
()	insects buzzed around fire. An old saying describes this attraction as being, "like a moth
()	why so many insects fly to their death into bug zappers. Artificial light adversely

PUT THE WORDS IN THE RIGHT ORDER

- 1. our In prehistoric why . ancestors questioned times,
- 2. study the dispels However, long-believed recent notion . a
- 3. orientation their helps with when flight . It in
- 4. nocturnal disorients actually light moths . like Artificial bugs
- 5. speculations insects about Our light . fly toward why
- 6. a conducted their in research scientists rainforest . The
- 7. lights canopy . installed under the artificial They
- 8. to navigate Insects the moon usually by fly .
- 9. into death zappers . Insects fly to bug their
- 10. insect's find ability a Affects an to mate .

CIRCLE THE CORRECT WORD (20 PAIRS)

From https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

Everyone knows that light attacks / attracts insects. In prehistoric times, our ancestors questioned why winged / winging insects buzzed around fire. An old saying describes this attraction as been / being, "like a moth to a flame". However, a recent study dispels / spells the long-believed notion that insects head / back towards light because they like it. Biologists at Imperial College London have reported that insects are drawing / drawn to light because it helps with their orientation when on / in flight. The scientists said artificial light actually disorients nocturnal bugs similar / like moths and mosquitos, often to fatal mends / ends. Jamie Theobald, co-author of the study, said all our speculations about thus / why insects fly toward light "might have been wrong".

The scientists conducted their research *in / on* a rainforest in Costa Rica. They installed artificial lights *lower / under* the canopy and observed the creatures' flying behaviour. Insects usually navigate *by / to* the moon to fly in straight lines. However, around *the / them* artificial lights, the bugs became confused and made arcs and *erotic / erratic* patterns of flight. An entomologist said: "*Natural / Naturally* sky light...helps maintain proper flight....Artificial sources...can produce continuous steering *around / abound* the light and trap an insect." This explains *why / what* so many insects fly to their death into bug zappers. Artificial light adversely *effects / affects* an insect's ability to find a mate, forage for food, and defend *itself / himself* against predators.

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

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

From https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

_v_ry_n_ kn_ws th_t l_ght _ttr_cts _ns_cts. _n
pr_h_st_r_c t_m_s, __r _nc_st_rs q__st__n_d why
w_ng_d _ns_cts b_zz_d _r__nd f_r_. _n _ld s_y_ng
d_scr_b_s th_s _ttr_ct__n _s b__ng, "l_k_ _ m_th t__
fl_m_". H_w_v_r, _ r_c_nt st_dy d_sp_ls th__ l_ngb_l_v_d n_t__n th_t _ns_cts h__d t_w_rds l_ght
b_c__s_ th_y l_k_ _t. B__l_g_sts _t _mp_r__l C_ll_g_
L_nd_n h_v_ r_p_rt_d th_t _ns_cts _r_ dr_wn t__ l_ght
b_c__s_ _t h_lps w_th th__r _r__nt_t_n wh_n _n
fl_ght. Th__ sc__nt_sts s__d _rt_f_c__l l_ght _ct__lly
d_s_r__nts _n_ct_rn_l b_gs l_k_ m_ths _nd _m_sq__t_s,
_ft_n t__ f_t_l _nds. J_m__ Th__b_ld, c_-_th_r _f th__
st_dy, s__d _ll __r sp_c_l_t__ns _b__t why _ns_cts fly
t_w_rd l_ght "m_ght h_v_ b__n wr_ng".

Th_ sc__nt_sts c_nd_ct_d th__r r_s__rch _n _ r__nf_r_st _n C_st_ R_c_. Th_y _nst_ll_d _rt_f_c__l l_ghts _nd_r th_ c_n_py _nd _bs_rv_d th_ cr__t_r_s' fly_ng b_h_v___r. _ns_cts _s__lly n_v_g_t_ by th_ m__n t_ fly _n str__ght l_n_s. H_w_v_r, _r__nd th_ _rt_f_c__l l_ghts, th_ b_gs b_c_m_ c_nf_s_d _nd m_d_ _rcs _nd _rr_t_c p_tt_rns _f fl_ght. _n _nt_m_l_g_st s__d: "N_t_r_l sky l_ght...h_lps m__nt__n pr_p_r fl_ght..._rt_f_c__l s__rc_s...c_n pr_d_c_ c_nt_n__s st__rng _r__nd th_ l_ght _nd tr_p _n _ns_ct." Th_s _xpl__ns why s_ m_ny _ns_cts fly t_ th__r d__th _nt_ b_g z_pp_rs. _rt_f_c__l l_ght _dv_rs_ly _ff_cts _n _ns_ct's _b_l_ty t_ f_nd _ m_t_, f_r_g_ f_r f__d, _nd d_f_nd _ts_lf _g__nst pr_d_t_rs.

PUNCTUATE THE TEXT AND ADD CAPITALS

From https://breakingnewsenglish.com/2402/240205-light-attracts-insects.html

everyone knows that light attracts insects in prehistoric times our ancestors questioned why winged insects buzzed around fire an old saying describes this attraction as being like a moth to a flame however a recent study dispels the longbelieved notion that insects head towards light because they like it biologists at imperial college london have reported that insects are drawn to light because it helps with their orientation when in flight the scientists said artificial light actually disorients nocturnal bugs like moths and mosquitos often to fatal ends jamie theobald coauthor of the study said all our speculations about why insects fly toward light might have been wrong the scientists conducted their research in a rainforest in costa rica they installed artificial lights under the canopy and observed the creatures flying behaviour insects usually navigate by the moon to fly in straight lines however around the artificial lights the bugs became confused and made arcs and erratic patterns of flight an entomologist said natural sky lighthelps maintain proper flightartificial sourcescan produce continuous steering around the light and trap an insect this explains why so many insects fly to their death into bug zappers artificial light adversely affects an insects ability to find a mate forage for food and defend itself against predators

PUT A SLASH (/) WHERE THE SPACES ARE

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Everyoneknowsthatlightattractsinsects. In prehistoric times, our ance storsquestionedwhywingedinsectsbuzzedaroundfire. Anoldsayingde scribesthisattractionasbeing, "likeamothtoaflame". However, arecen tstudydispelsthelong-believednotionthatinsectsheadtowardslightb ecausetheylikeit.BiologistsatImperialCollegeLondonhavereportedt hatinsectsaredrawntolightbecauseithelpswiththeirorientationwheni nflight. The scientists said artificial light actually disorient snocturnal bu gslikemothsandmosquitos, oftentofatalends. Jamie Theobald, co-aut horofthestudy, saidallours peculations about why in sects fly toward light t"mighthavebeenwrong". The scientists conducted their researchinara inforestinCostaRica.Theyinstalledartificiallightsunderthecanopyand observedthecreatures'flyingbehaviour.Insectsusuallynavigatebyth emoontoflyinstraightlines. However, around the artificial lights, the bu gsbecameconfused and made arcs and erratic patterns of flight. An ento mologistsaid: "Naturalskylight...helpsmaintainproperflight....Artifici alsources...canproducecontinuoussteeringaroundthelightandtrapan insect."This explains why somany insects fly to their death into bug zapp ers.Artificiallightadverselyaffectsaninsect'sabilitytofindamate,forag eforfood, and defend itself against predators.

FREE WRITING

Write about nocturnal insects for 10 minutes. Comment on your p	partner's paper.

ACADEMIC WRITING

We should turn off lights at night to help nocturnal insects survive. 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. NOCTURNAL INSECTS:** Make a poster about nocturnal insects. Show your work to your classmates in the next lesson. Did you all have similar things?
- **4. LIGHTS OUT:** Write a magazine article about turning off lights at night to help nocturnal insects survive. 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 nocturnal insects. Ask him/her three questions about them. Give him/her three of your ideas on how to help them. Read your letter to your partner(s) in your next lesson. Your partner(s) will answer your questions.

ANSWERS

VOCABULARY (p.4)

2. 3. 5. 1. а С 4. 7. g 8. j 9. 1 10. 11. i 12. h 13. k 14. n m

TRUE / FALSE (p.5)

1 F 2 F 3 T 4 T 5 F 6 F 7 T 8 T

SYNONYM MATCH (p.5)

1.	g	2. i	3. e	4. j	5. c
6.	a	7. h	8. b	9. f	10. d

COMPREHENSION QUESTIONS (p.9)

WORDS IN THE RIGHT ORDER (p.19)

1.	In prehistoric times	1.	In prehistoric times, our ancestors questioned why.
2.	Like a moth to a flame	2.	However, a recent study dispels the longbelieved notion.
3.	Imperial College London	3.	It helps with their orientation when in flight.
4.	Their orientation	4.	Artificial light actually disorients nocturnal bugs like moths.
5.	Nocturnal bugs	5.	Our speculations about why insects fly toward light.
6.	Costa Rica	6.	The scientists conducted their research in a rainforest.
7.	The moon	7.	They installed artificial lights under the canopy.
8.	Erratic patterns	8.	Insects usually navigate by the moon to fly.
9.	Bug zappers	9.	Insects fly to their death into bug zappers.
10.	Food	10.	Affects an insect's ability to find a mate.

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 ;-)