

# THERE'S A NEW PLANET IN SIGHT

Catherine Clark Fox (1917-2008)

After completing this lesson, you will be able to:

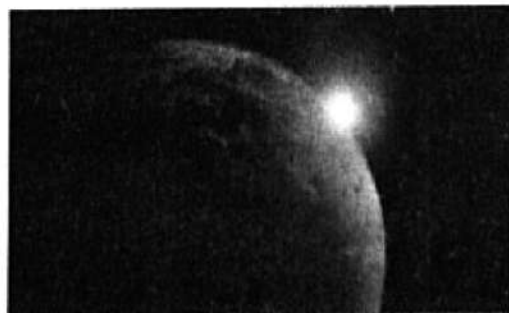
- demonstrate attentive listening' skills while working in a whole class setting and taking turns to speak with standard pronunciation.
- respond to questions on a range of communicative purposes.
- analyse organisational patterns in a text:
  - a. list/ sequence of ideas/ events comparison-contrast
  - b. cause-effect
  - c. problem-solution
  - d. reasons/ assumptions-conclusion
- use pre-reading and while-reading strategies to analyse and explore different layers of meaning within texts including biases and opinions. Read and use inference and deduction to recognise implicit meaning (e.g. look for supporting details within a text/paragraph) using prior knowledge and contextual cues effectively.
- distinguish cause from effect, fact from opinion (e.g., by noting outcomes, personal comments, beliefs and biases), and generalized statements from evidence-based information with specific reference to informational texts.
- use the aspect of time correctly in speech and writing.
- write a book review report

### Pre-Reading

- Do you have any knowledge of the planets and holes in ozone layer?
- How do we benefit with scientific advancement in our daily life?

A computer-generated image of TrES-2. TrES-2 is a gas planet like Jupiter, but it is larger.

An international team of astronomers has discovered a planet slightly larger than Jupiter that orbits a star 500 light years from Earth. A super-duper telescope was not even required; they found the planet using several small telescopes much like those used by amateur astronomers.



The new planet is named TrES-2 because it is the second such planet found by scientists working on the Trans-Atlantic Exoplanet Survey (TrES). It is a transiting planet, meaning it can be seen transiting, or moving, across the star it orbits.

Ted Dunham, an instrument scientist at Arizona's Lowell Observatory, says transiting planets are special because researchers can answer a lot of questions about them. All it takes is some math and some observations about the planet and its relationship to its star.

Some key questions: How big is it? How long is its year (the time it takes to orbit around its star)? How much would you weigh if you were there?

"TrES-2 is a little bigger than Jupiter, has a 'year' that is a little less than two and a half days, and is a little more massive than Jupiter," explains Dunham.

From its mass and radius (the distance across the planet) scientists can figure out the density of the planet—whether it is made of rock, gas, or a combination of the two. (TrES-2 is made up mainly of gas).

#### While-reading

How can scientists figure out the density of the planet?

They can also work out the surface gravity, says Dunham: "You would feel a little more than twice as heavy as on Earth if you were on TrES-2."

There's a catch, though. "The temperature is about 1,500 degrees Celsius (2,732 degrees Fahrenheit), and there is nothing solid to stand on. It isn't a likely place to look for life," he says.

Dunham says that to find smaller planets like Earth or Venus, scientists need to send instruments on a mission to space. NASA scientists are planning "The Kepler Mission", which could begin in two years.

TrES-2 is in the part of the sky that the Kepler Mission will study. Since astronomers already know so much about it, they can use it to help make sure their instruments are working.

"It's really a blast to be working on finding planets orbiting other stars," says Dunham. "People have wondered for millennia whether there are other planets like ours, maybe with living things on them. The next ten years should be fun. Stay tuned!"

#### Year for Ozone hole

Ozone, a gas that is produced naturally up in the stratosphere, surrounds the Earth like a protective blanket. This ozone layer keeps us safe because it absorbs many of the sun's harmful ultraviolet (UV) rays.

#### While-reading

How does Ozone layer keep us safe?

But that protective blanket gets holes in it because of man-made chemicals known as ozone-depleting substances—ODS for short—which destroy ozone and our protection from UV rays.

Scientists report that this year the hole over Antarctica is a record-breaker: "From September 21 to 30, the average area of the ozone hole was the largest ever observed at 10.6 million square miles (27.4 million square kilometers)," said atmospheric scientist Paul Newman with NASA's Goddard Space Flight Center.

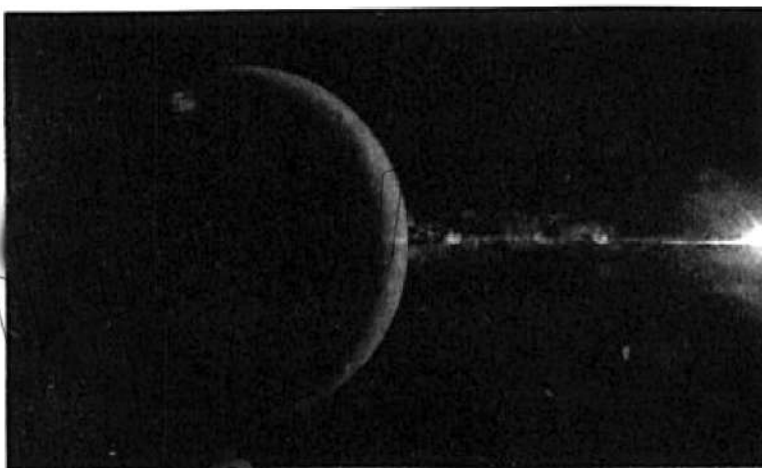
That's larger than the surface area of North America. The hole is also the deepest ever recorded.

Two things account for the record-breaking hole. The first is that even though more than 180 countries agreed to phase out ODS use in 1987, there are still a lot of these substances up in the stratosphere from years past. That's because they last a long, long time, some of them more than a hundred years.

The second factor has to do with clouds and cold temperatures over the South Pole.

"The polar stratosphere is a very cold, dry place," explains Newman. "It is hard for clouds to form there. But polar stratospheric clouds form when it gets extremely cold: minus 109 degrees Fahrenheit (minus 78 degrees Celsius)." Newman says that's when some interesting chemistry takes place: "The cloud releases chlorine in a form that rapidly destroys ozone."

The good news, however, is that the situation would be a lot worse if people hadn't started doing things to protect the ozone layer. By the year 2070, the big ozone holes will be a thing of the past, predicts Newman.



### Post-reading

How do polar stratospheric clouds form?

#### Notes and Comments

Catherine Clark Fox is a graduate of the University of Virginia. She launched her career as a researcher for National Geographic magazine, and earned a Publications Specialists Certificate from George Washington University.

She is a freelance writer and editor, has composed fresh, dynamic newsletters, Press releases, and fact sheets. This extract has been taken from National Geographic.

#### Theme

To bring awareness of the latest science discoveries is the main theme. This report will enhance students' interest to know more about Planets and Ozone.

## Glossary

Word	Meaning	Synonyms
amateur	one who engages in a pursuit, study or sport as a pastime	unprofessional
density	the quantity per unit volume, unit area or unit length	
depleting	to lessen markedly in quantity, content, power or value	
gravity	gravity, serious situation or problem	
Jupiter	the largest planet, and fifth in order of the SUN	
massive	large, solid or heavy in structure	
orbit	a circular path,	
stratosphere	the highest region on a graded scale	
transit	process of passing through or over	
ultraviolet	situated beyond the visible spectrum at its violet end	

## Comprehension

a) Answer the following questions.

1. Name the founder of the new planet TrES-2.
2. The transiting planets are special. Give reasons.
3. Mention the temperature on TrES-2.
4. According to the author, next ten years should be fun. Give reasons.
5. How can study of planets provide interesting information about Earth?
6. Describe the source the earth is surrounded like a protective blanket.
7. Why is it difficult for clouds to form at the Polar Stratosphere?
8. Highlight the Newman's prediction about ozone by the year 2070.
9. Justify that ozone layer is important for human life. Distinguish cause from effect, fact from opinion (e.g., by noting outcomes, personal comments, beliefs and biases), and generalized statements from evidence-based information with specific reference to effects of global warming on Ozone Layer.

b) Analyse organisational patterns in a text keeping in mind:

- a. list/ sequence of ideas/ events comparison-contrast
- b. cause-effect
- c. problem-solution
- d. reasons/ assumptions-conclusion

c) Complete the given sentences with suitable words.

- a) Dark Blankets get a hole in \_\_\_\_\_.
- b) TrES-2 is a gas planet like \_\_\_\_\_.



- c) TrEs-2 is made up mainly of \_\_\_\_\_.
- d) \_\_\_\_\_ account for record-breaking hole.
- e) The second factor has to do with \_\_\_\_\_ and \_\_\_\_\_.
- f) It's \_\_\_\_\_ for clouds to form there.
- g) The cloud releases \_\_\_\_\_ in a form that rapidly destroys ozone.
- h) By the year 2070, the big ozone holes will be a thing of the \_\_\_\_\_.

d. Astronomy is a branch of science which tells about moon, stars, etc. The word 'Star' has been used in the unit. Consult a dictionary and tell the difference between astronomy and astrology.

## Oral Communication

Respond to questions on a range of communicative purposes.

- Arrange a quizz activity by forming groups of four or five students.
- They can take help from Internet to collect information about Suparco and Nasa.
- What is the purpose of these organizations?
- After sharing the views with others, a presentation will add to the knowledge of the students.

## Inference

- 1 Do you think study of Planets will give us interesting information about Earth?
- 2 Do you think ozone layer is important for human life?

**Activity:** "Discussion Circle" Students sit in a circle, taking turns to add one sentence to a group discussion about 'Human Plans to Live on Mars', using clear pronunciation. After completing the discussion, they summarize it, emphasizing attentive listening and incorporating previous details.

## Grammar and Vocabulary

### a) Aspect of time correctly in speech and writing

#### Grammar and usage

#### Tense and Aspect

Tenses: Present/Present perfect

Past/Past perfect

Future/Future perfect

Aspects: Common

Peogressive

Tense and aspect are different grammatical categories, but they always come together in a given phrase.

As a practical approach to language usage, we don't mention tense or aspect, we rather speak of the following structures:

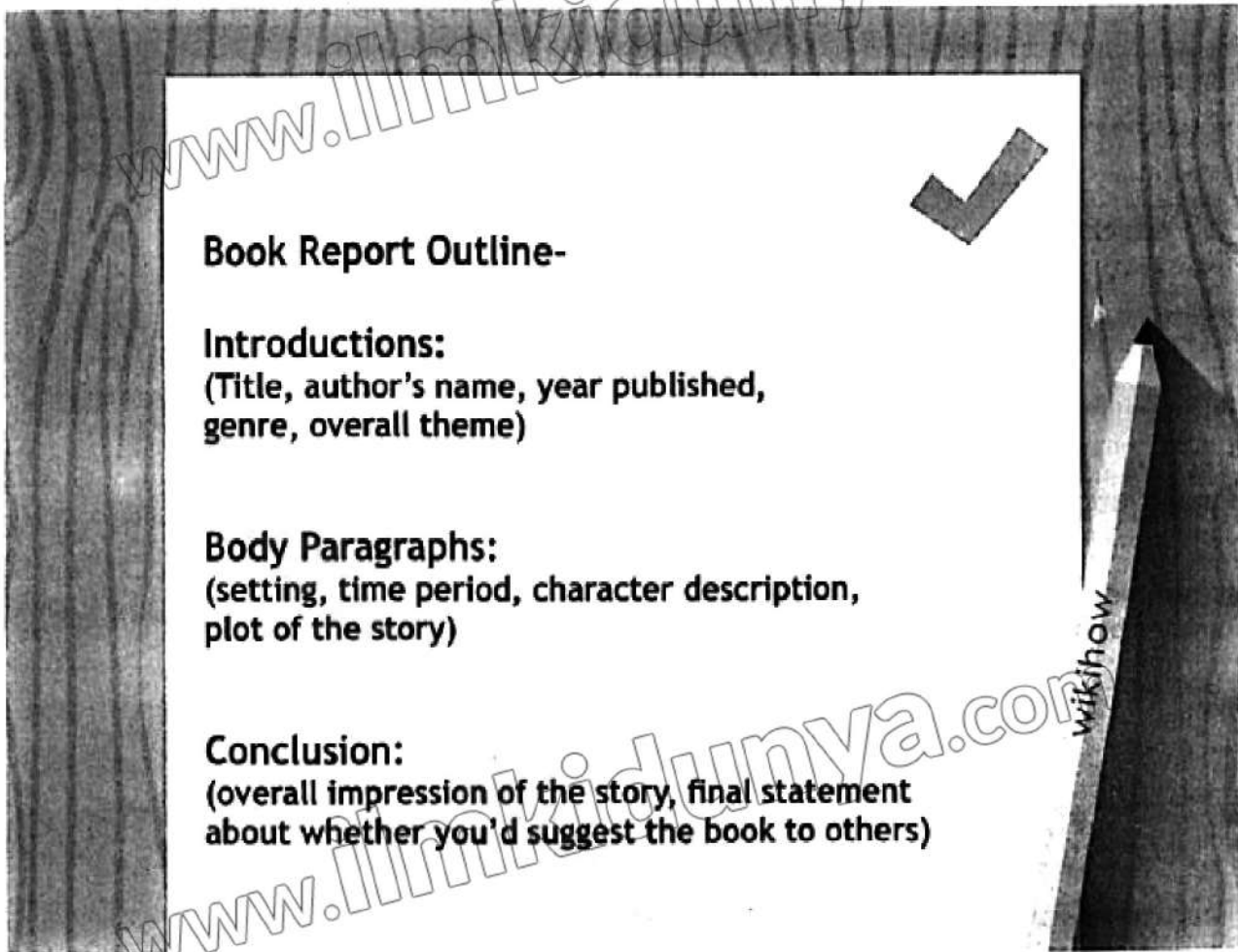
Present simple (present tense+common aspect)	I always go out on Saturday evenings. She never gets up early in the morning.
Present progressive (present tense+progressive aspect)	I'm sitting here and listening to you. Look out, it's raining. (Progressive aspect is called 'continuous' in several textbooks.)
Past simple (past tense+common aspect)	I played tennis with Shella yesterday. Grandfather came home early last night.

<b>Past progressive</b> (past tense+progressive aspect)	We were playing football at six yesterday. She was studying English from six to seven.
<b>Present perfect simple</b> (present perfect tense+common aspect)	Sorry, I've broken your glasses. Have you done your homework (yet)?
<b>Present perfect progressive</b> (present perfect tense+progressive aspect)	We've been living here for ten years. She has been playing the guitar all this morning.
<b>Past perfect simple</b> (past perfect tense+common aspect)	She said she had written three letters the day before. We had lived in Oxford before we moved to London.
<b>Past perfect progressive</b> (past perfect tense+progressive aspect)	She said she had been playing tennis all that morning. How long had you been staying here when the rain started?
<b>Future simple</b> (future tense+common aspect)	I will be thirty years old next year. Our train will leave at 7:30 tomorrow.
<b>Future progressive</b> (future tense+progressive aspect)	This time tomorrow we'll be flying to Los Angeles. What will you be doing at six tomorrow?
<b>Future perfect simple</b> (future perfect tense+common aspect)	I will have finished this work by the end of next week.
<b>Future perfect progressive</b> (future perfect tense+progressive aspect)	We'll have been staying here for two weeks by next Friday.

**Activity:** Read each sentence carefully and choose the correct tense or time marker to complete the sentence accurately.

- 1) Sarah \_\_\_\_\_ (read/reads) a book every night before bed.
- 2) Last summer, we \_\_\_\_\_ (go/went) camping in the mountains.
- 3) By the time I \_\_\_\_\_ (get/got) home, the party had already started.
- 4) Next year, our school \_\_\_\_\_ (celebrate/celebrates) its 50th anniversary.
- 5) He \_\_\_\_\_ (will finish/will be finishing) his homework when you arrive.
- 6) Right now, they \_\_\_\_\_ (watch/watches) a movie at the cinema.
- 7) Yesterday, Maria \_\_\_\_\_ (bake/baked) a delicious cake for her friend's birthday.
- 8) In two weeks, we \_\_\_\_\_ (will go/will be going) on vacation to Murree.
- 9) By the time you \_\_\_\_\_ (arrive/arrived), I will have already left for the airport.
- 10) Every morning, the birds \_\_\_\_\_ (sing/sings) outside my window.

## Writing



### Book Report

A book report is a written summary and analysis of a book that provides insights into its content, themes, characters, and overall impact. It's commonly assigned in schools as a way for students to demonstrate their understanding of a particular book and their ability to critically analyze its elements. Here are the typical steps involved in writing a book report:

#### 1. Reading the Book:

The first step is to thoroughly read the book from beginning to end. Take notes on important plot points, characters, themes, and any significant quotes or passages.

#### 2. Introduction:

- Provide basic information about the book, including its title, author, genre, and publication date.
- Briefly introduce the main themes or ideas that the book explores.

#### 3. Summary:

- Summarize the main plot points of the book without giving away the ending.
- Include information about the setting, major characters, and key events that drive the story forward.

- Focus on the most significant aspects of the plot and avoid unnecessary details.

#### 4. Analysis:

- Analyze the themes, characters, and writing style of the book.
- Discuss how the author develops the plot and characters, and how these elements contribute to the overall message or purpose of the book.
- Consider the book's strengths and weaknesses, and evaluate its effectiveness in conveying its intended message or entertaining its audience.

#### 5. Personal Reflection:

- Share your personal thoughts and reactions to the book.
- Discuss what you liked or disliked about the book, and why.
- Reflect on how the book impacted you and whether it changed your perspective on any issues or themes.

#### 6. Conclusion:

- Summarize your main points and restate your overall impression of the book.
- Offer recommendations for who might enjoy reading the book and why.
- End with a final thought or reflection on the significance of the book.

#### 7. Proofreading and Editing:

- Review your book report for spelling, grammar, and punctuation errors.
- Ensure that your writing is clear, concise, and well-organized.
- Make any necessary revisions to improve the clarity and effectiveness of your report.

#### 8. Citation (if necessary):

Make sure to properly cite the external sources or quotes from the book according to the required citation style (e.g., MLA, APA).

**Activity: Complete a 'Book Report Worksheet' following the above mentioned points.**

- Title of the Book: \_\_\_\_\_
- Author: : \_\_\_\_\_
- Genre: : \_\_\_\_\_
- Date Started: : \_\_\_\_\_
- Date Finished: : \_\_\_\_\_

#### 1. Basic information:

Provide the title and author of the book.

What genre does the book belong to? (e.g., fiction, non-fiction, mystery, fantasy)

#### 2. Summary:

Write a brief summary of the book. Include the main characters, setting, and plot points.

#### 3. Characters:

List and describe the main characters. Include their traits, motivations, and relationships with



other characters.

#### **4. Setting:**

Describe the setting(s) of the story. Include time period, location, and any significant details about the environment.

#### **5. Plot:**

Summarize the main events of the story. What are the key turning points or conflicts?

#### **6. Themes:**

Identify the main themes or messages conveyed in the book. How are they developed throughout the story?

#### **7. Personal Response:**

Share your personal thoughts and feelings about the book. What did you like or dislike? Would you recommend it to others? Why or why not?

#### **8. Favorite Quotes:**

Select a few memorable quotes from the book and explain why they stood out to you.

#### **9. Comparisons:**

Compare this book to others you have read in the same genre or by the same author. How does it stand out?

#### **10. Overall Evaluation:**

Rate the book out of 5 stars and justify your rating with specific examples from the text.

#### **11. Additional Activities (Optional):**

Discuss any related activities you did alongside reading the book, such as research, discussions, or creative projects.

#### **12. Recommendations:**

Would you recommend this book to others? If so, who do you think would enjoy it and why?

#### **13. Conclusion:**

Sum up your thoughts on the book and conclude your report .

#### **Teacher's Note:**

- Ask students to respond to questions on a range of communicative purposes.
- Motivate them to analyse organisational patterns in a text:
  - a. list/ sequence of ideas/ events comparison-contrast
  - b. cause-effect
  - c. problem-solution
  - d. reasons/ assumptions-conclusion
- Encourage them to distinguish cause from effect, fact from opinion (e.g., by noting outcomes, personal comments, beliefs and biases), and generalized statements from evidence-based information with specific reference to informational texts.
- Help them to use the aspect of time correctly in speech and writing.
- Motivate them to write a book review report on their own.