

HIAS OPEN RESOURCE

Introducing students to features of text types within your subject area

Supporting all readers in the secondary school

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Final version

Overview

This document contains...

Slides that could be used as part of a CPD sequence for teachers in school, supporting understanding of reading in secondary schools

Points to consider when using this resource

The resources in this series are intended as a companion piece to the DfE's series of training videos and guidance [Supporting all readers in secondary school](#), providing additional detail. This resource expands on ideas shared in video 5, [Identifying text features](#) and provides links to research.

Connect to experience of similar texts

- Presentational features
 - Use of images, graphic organisers, colours and font choices
 - Visual sequencing – what do you look at first and last?
- Organisational principles
 - Headings and subheadings
 - Bold and italics for key terms
 - Relationship between text and images
- Expectations – the contract between the reader and the writer
 - The writer provides enough information for the reader to make sense of the information; the reader perseveres to find the information

THIS IS BILLY

His owner stuffed him into a plastic bag and threw him out with the rubbish

Imagine being beaten every day of your life. Imagine being starved and left out in the cold by the person who is supposed to love you. Imagine being maliciously tortured and left to die in agonising pain.

Sadly, this is the reality for thousands of animals in Britain today – animals like Billy, in the picture above. His heartless owner resented his starving pet in a plastic bag, and left him by a rubbish chute, almost hidden by rubbish bags waiting to be incinerated.

Every year we see more and more discarded, maltreated, frightened animals like Billy. In one year, our inspectors in England and Wales investigated over 130,000 complaints of cruelty. It's a massive problem that is stretching RSPCA resources to breaking point.

Without your financial support, our continued fight against cruelty would face severe difficulty. This is why we desperately need your help.

Your £3 a month could save even more animals' lives

Billy's Story

Billy's owner was so desperate to be rid of him that he stuffed the dog into a plastic bag, and chucked him on to a pile of rubbish sacks waiting to be incinerated. If he hadn't been found, Billy would have starved to death. When we rescued him, Billy was so weak that he couldn't even lift his head or crawl out of the open bag. We got him immediate veterinary attention, but the vet told us that Billy had been starved for so long that he probably wouldn't live. Nevertheless we persevered, and very slowly Billy began to recover. Eventually we were able to find him a new and loving home.

SAVED BY THE RSPCA!

Please help us fight cruelty with a promise of regular help NOW. To start giving regularly please complete the form below and return to: RSPCA, FREEPOST, BRISTOL BS38 7LQ. The RSPCA is a registered charity in England and Wales no. 210089.

Forename: _____ Surname: _____ I would like to pay (per month)

Address: _____ £5 ☐ £10 ☐

Postcode: _____ Tel. no: _____ £15 ☐ £20 ☐

Other: _____

Instruction to your bank to pay by Direct Debit

Bank/Building Society: _____

Account No: _____ Sort code: _____

Signature: _____ Date: _____

A single 80-metre-long blade on a giant MHI Vestas wind turbine generates enough electricity to power a typical UK home for 24 hours!

WIND POWER

Wind has been used for centuries to turn windmills and grind grain into flour. Today, turbines also use the wind to power generators. Large wind farms can produce enough electricity to run 300,000 homes. In 2017, Denmark produced 43% of its energy using wind power, saving vast amounts of resources and reducing air pollution. However, because winds die down, turbines can't guarantee power around the clock.

ENERGY FROM THE EARTH

The 'geothermal' energy in hot underground rocks can be used to warm buildings or power generators. Cold water is pumped into a system of underground pipes to absorb heat and send hot water or steam back to the surface. Iceland has lots of hot rocks underground, so nearly 90% of its homes are heated by geothermal energy. However, only some countries have enough geothermal energy that can be used easily.

Flight of Fancy

SOME OF THE AMAZON'S MOST SPECTACULAR SIGHTS ARE BROUGHT TO US BY THE BEAUTIFUL BIRDS THAT FILL ITS SKIES AND ADORN ITS BRANCHES.

BLUE-AND-YELLOW MACAW
A FLASH OF TOPAZ AND GOLD
FOLLOWED BY A PERCING SHRIEK announces the arrival of the blue-and-yellow macaw. Curious, social, and noisy, the macaw belongs to one of the most intelligent animal families on the planet: the parrot. These chatterboxes love company and often mate for life, and group together in large flocks up to 50 birds. But macaws aren't all talk; they are able to use tools and solve problems, too.

RED-BILL TOUCAN
HUMMINGBIRDS
SOMEONE COULD HEAR THE CALL OF THE MAJESTIC RED-BILL TOUCAN! This is one of the largest of the tiny species of toucan in the world. It is a tree-dwelling bird, clumsy and heavy in flight, and happier to hop from branch to branch to seek out berries. Its huge bill is surprisingly light – made up of a honeycomb-like structure – and useful for reaching into nests and crevices for food.

HARPY EAGLE
BIRDS BARFLY
Every animal in the rainforest, from the sloth to the spider monkey to the shy poison dart frog, lives in fear of the terrifying harpy eagle, which soars at the top of the food chain with no predators of its own. SHARP BEAKED, LONG-TAILED, AND CROWNED WITH A CREST OF GREY FEATHERS, the harpy is the king of the Latin American rainforest, and the largest – and most powerful – of all the eagle family. Nothing escapes its sharp eye. It spots its target, dives on its prey, and plucks it from the air with its inescapable talons.

COLLARED INCA
GULLIVER TROUQUET
Close your eyes. Can you hear a hummingbird's buzz? Tuck up, and if you see something hovering and darting in quick, zippy movements among the dead flowers, you've spotted a collared inca. A TINY AND DISTINCTLY MARKED HUMMINGBIRD, hovering its wings more than fifty times in a second, the hummingbird's wings move so fast that they appear blurred to the human eye. Its heart pumps around one thousand times a minute in flight, and so the hummingbird relies on a high-energy diet of sugary nectar that it extracts from flowers with its needle-like beak.

Are students familiar with the conventions of your subject's textbooks?

- Don't assume that all students have used textbooks in the form or for the purposes that you might use them in Year 7
- Spend some time talking them through features that might seem obvious, such as:
 - On this page, you can see the heading 'Uses of solids, liquids and gases' followed by subheadings for 'solids' and 'liquids', meaning that 'gases' is on the next page (primary pupils are very used to double-page spreads)

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Solids, liquids and gases


In this chapter you will learn:

- about the different uses of solids, liquids and gases
- how gases can spread out for miles around
- how incredibly small air particles can crush a metal can

You will also develop your skills in:

- classifying substances by using and changing a key
- using models to explain observations

→ → → WHAT DO YOU KNOW?



Everything around us is made from matter. There are three states of matter: solids, liquids and gases.
Look at the picture above and see if you can find three examples of a solid, a liquid and a gas.

SOLIDS, LIQUIDS AND GASES 79


The table below lists three things you can try to do to solids, liquids and gases. Copy out the table. Working in a group, discuss (which you think you can do) and complete the table by marking each box with a tick (✓) or cross (X).

Property	Solid	Liquid	Gas
keeps its shape?			
easy to squash?			
easy to pour?			


→ **Uses of solids, liquids and gases**

The uses of solids, liquids and gases are linked to their different **properties**.

Solids
Stone pillars are used in churches because they keep their shape, even though the weight of the roof is pressing down on them.



Liquids
Milk from a farm is poured from a churn into a tanker to transport it to the dairy. At the dairy, the milk is pumped out of the tanker. The milk takes up the shape of any container that it occupies. The milk cannot be squashed to make more fit into the tanker.



Features such as **chapter previews**, **chapter summaries**, **fact boxes**, **use of bold and italics to highlight key words**, **illustrative images** etc are useful in supporting understanding of the material in the chapter. However, some students are likely to think that they can use just these features to avoid reading the rest of the content. **Model reading the whole text!**

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How can humans and AI work together to detect deepfakes?

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Abstract

Fake news is not new on the internet, and people often change images and videos for a joke. However, deepfakes aren't only meant to make you laugh. Instead, they can spread misinformation or discredit a person or a group. As more deepfakes find their way onto the internet, we need to find the best way to detect these harmful videos. We tested whether the leading AI model or humans were better at detecting deepfakes online. We found that humans and the AI model were each good at identifying certain types of deepfakes. Maybe we could merge the abilities of both AI and humans to create the best deepfake detection model!

Introduction

Imagine you are watching a video online of your favorite celebrity and they say something very offensive. You might be shocked, or maybe even angry. But you have a feeling that something is wrong with this video – and it turns out it's a **deepfake**.

For a long time, video evidence has been the best way of indicating whether someone did or said something. Unfortunately, the rise of deepfakes means that is no longer the case. **Deepfakes are videos that show people saying or doing things that didn't really happen.** These videos are created by an **artificial intelligence (AI)** system based on **deep learning** – leading to the name deepfake. There have been a handful of deepfakes that have gone viral in the past few years. These include videos of well-known figures like Barack Obama, Donald Trump, and Mark Zuckerberg

Methods

We designed a website called Detect Fakes, where anyone could view deepfake videos. We used this site to test how accurately ordinary people could detect a deepfake. Most of the videos were of unknown people making unimportant statements. That was to make the experiment more equal between humans and the machine learning model.

We conducted two experiments:

→ **Experiment 1** – One real and one fake video side by side

All participants in this experiment found the site while browsing. They watched a deepfake video alongside its corresponding real video, and we then asked them to choose which one was fake. There were 56 pairs of videos. We examined the accuracy of 882 participants who watched at least 10 pairs of videos (Figure 1). The machine learning model assessed all 56 videos.

→ **Experiment 2** – One real or fake video

We had two kinds of participants in this experiment: people we recruited and people who found the site while browsing. We focused on participants who had viewed at least 10 videos. In total, there were 301 recruited participants and 1,879 non-recruited participants.

Our recruited participants started the assignment with a writing exercise. Half of them just had to write about their day. The other half had to write about things that made them angry. This was to test how emotion impacts decision-making. They then watched the videos.

All participants were shown one video at a time. They had to share how confident they were, from 50–100%, that the video was real or a deepfake. The videos we used included four videos of Kim Jong-un and Vladimir Putin, two of which were fake. We then showed participants what the model predicted and allowed them to change their answers. This way we could see whether human decision-making was impacted by machine predictions. The machine learning model assessed 50 videos from a **dataset** of 4,000 videos.

In both experiments, we included **interventions**. These included **obstructed** faces and inverted videos – videos shown upside down. We did this to see if the way our brain naturally recognizes faces changes our ability to identify a deepfake.

Figure 1:
Here are two images used in Experiment 1. One of these images is from the original video and one is from the deepfake. We asked the participants to identify which of these two videos was the deepfake. Can you guess which image is the deepfake? Image: PNAS, CC BY-NC-ND

Results

→ **Experiment 1**

The leading machine learning model correctly identified 65% of the videos in the dataset (Figure 2). 82% of participants outperformed the machine learning model.

Participants were better at detecting fakes in high-quality videos. When the video was inverted or of low quality, they were 5% less accurate.

→ **Experiment 2**

Recruited participants identified deepfakes 66% of the time. Non-recruited participants identified deepfakes 72% of the time.

Please see Figure 2 on page 3

Discussion

Our results suggest that people are as good at identifying a deepfake as the leading machine learning model. Participants were better than the model when it came to the four videos of Kim Jong-un and Vladimir Putin. This could be because we can think critically about the content beyond the visual clues. The machine learning model was pretty certain that the authentic videos were deepfakes. This leads to questions about the model's ability to analyze the context of a video.

Emotion does seem to impact human decision-making by decreasing our accuracy. Therefore, deepfakes that provoke emotion may be harder for us to detect.

In Experiment 2, participants could change their initial answer after seeing the model's response. This helped participants improve their accuracy in most cases. However, it also led them to change their correct answers. This suggests that human-machine collaboration might not lead to more accurate results.

Conclusion

The good news is people appear to be good at detecting deepfakes. The bad news is that deepfakes will likely get more difficult to detect over time. However, we can take action. Humans are better at thinking critically about the content and context of the video. Always think before sharing viral videos, especially if they make us angry or upset! We can tell our friends and family to be careful, too.

More free science education resources at: www.ScienceJournalForKids.org

This scientific article aimed at teenagers can be used to familiarise students with the structure of a science paper, including the abstract, methods, results, discussion and conclusion. This is a more important text type for students to read in science than (for example) biographies of famous scientists.

Text-type features to explore

- How to interpret data from tables, graphs and grids, and how to connect this data to the written content
- How to follow step-by-step information, particularly when this information is combined with description and commentary, as in some recipes or instructions
- How to use indexes, glossaries, summary boxes, annotations of images, maps
- How to distinguish facts and opinions, and how to connect these to the context within which they are written or expressed
- How to connect information from different sections of the page/s

HIAS English Team

Please contact Joanna Kenyon Joanna.Kenyon@hants.gov.uk for support with secondary reading, whole school literacy and English.

For further details on the full range of services available please contact us using the following email: htlcdev@hants.gov.uk

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