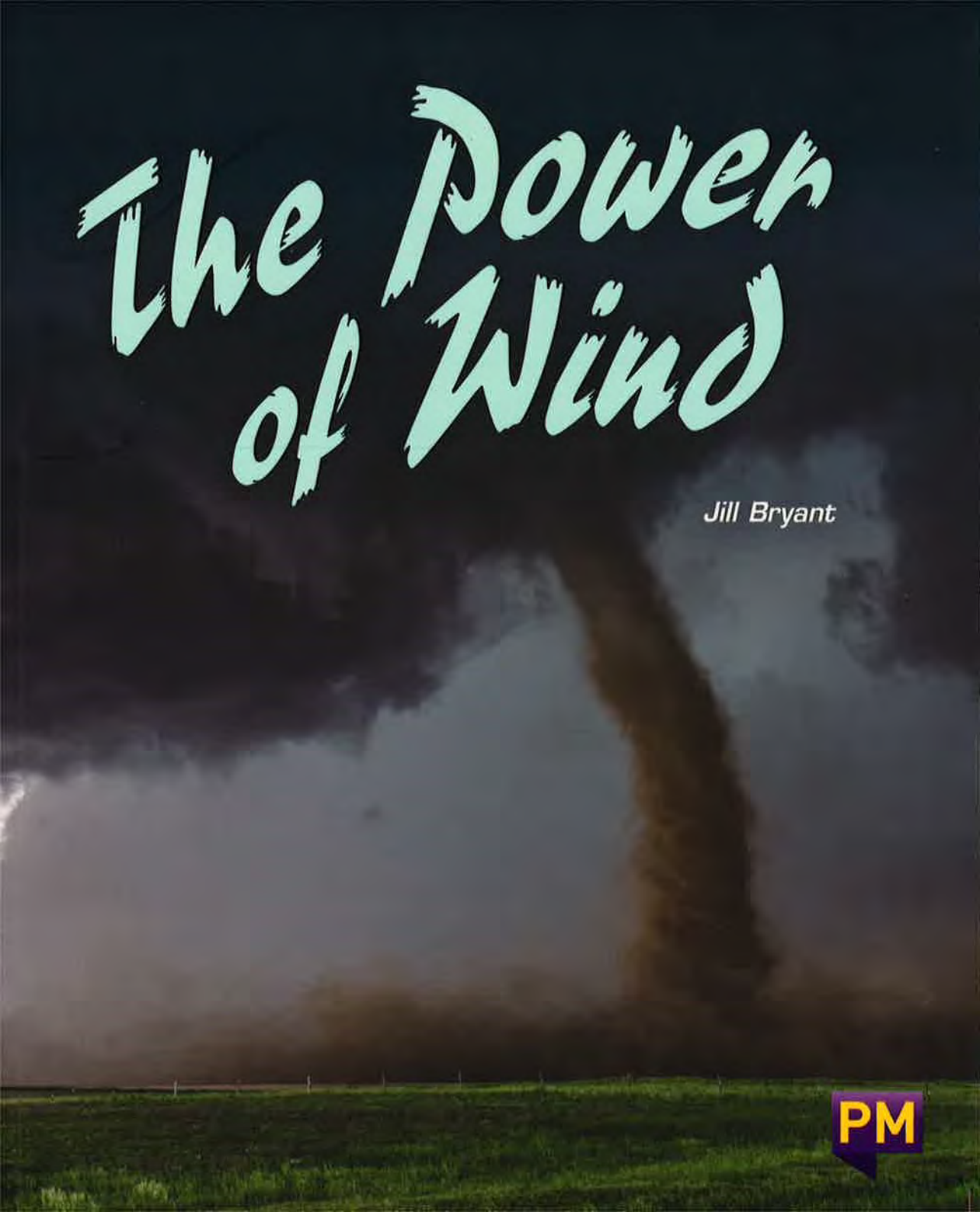

The Power of Wind
Jill Bryant
PM

For teachers' inspection ONLY

The Power of Wind

Level 28

Running Words 2888 **Text Types** Information Report (Informative) pages 2–27
Recount (Imaginative) pages 28–30

Curriculum Areas Humanities – Geography; Science

Retelling to encourage critical thinking about the content

Ask each student to retell the information report and recount in his or her own words.

Record the retellings for further discussion and reflection.

Think and Talk About …

Fact boxes in the book encourage each student to explore the statements further and to share the information with others.

Questions to reinforce meaning and stimulate discussion

Literal

1 How does a cold front develop?
2 Why is wind energy often called 'clean' energy?
3 What is the Beaufort scale used for?

Inferential

4 What is the foam that appears on some waves?
5 Why did the Netherlands need so many windmills?
6 Why was the Beaufort scale first developed for use at sea?
7 How does wind form sand dunes?
8 Why are tornadoes often referred to as 'twisters'?
9 Why is the basement of a house the safest place when a tornado hits?
10 Why is it essential to pack health-care items in an emergency kit?

Applied Knowledge

11 How is air pressure measured?
12 How were windmills 2000 years ago used to grind grain into flour?
13 Why does the USA experience more tornadoes than anywhere else in the world?

Vocabulary

Replace the adjective 'destructive' in this sentence:
Hurricanes can be extremely destructive, especially to coastal communities.

Links with other PM Guided Reading Books and Cards

Level 27	Book	Information Report/Exposition	*Working High and Low*
Level 28	Card	Procedural Recount	*Preparing for a Natural Disaster*
Level 28	Card	Narrative	*Thunder Phobia*

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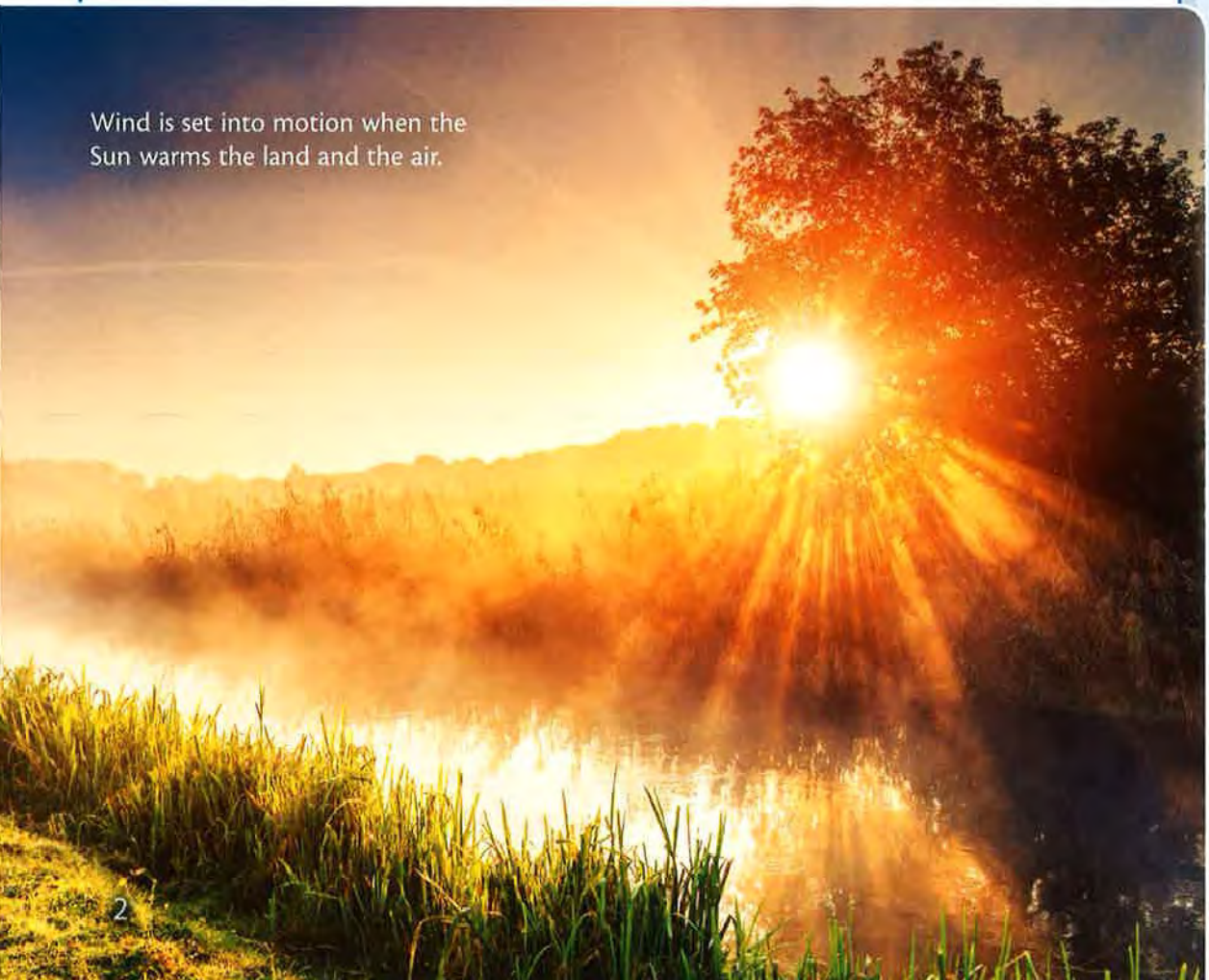
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What Is Wind?

Wind is a common weather phenomenon that people notice nearly every day. Wind is moving air. Hot air is light and tends to float up towards the clouds. Cold air is heavy and has a higher **density**, which means the air **molecules** are packed tightly together. Cold air sinks down to the ground and creates an area of high **pressure**. When air travels from an area of high pressure to an area of low pressure, a rush of moving air occurs. This is wind.



Wind is set into motion when the Sun warms the land and the air.

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Wind is the force that makes autumn leaves rustle. It stirs up sand and causes it to whip into dusty clouds. Wind creates whitecaps on the ocean and forms sand dunes on the beach. Wind is nature's way of scattering seeds so that plants reproduce and spread. A gentle wind can help people cool off on a hot day, but a sudden **gust** of wind can blow umbrellas inside out. Wind quickly dries wet laundry hanging on a clothesline. A strong wind provides the push that can be used for a wide variety of recreational activities.



Wind is essential for flying kites.



Wind carries dandelion seeds to faraway places where they take root and grow.

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Wind and Weather

A light, warm **air mass** does not remain up high. Eventually, warm air cools and sinks to the ground. Meanwhile, cold, low-lying air is warmed by the Sun and rises as it gets warmer. The result is an ever-changing flow of air in the form of wind.

High winds often occur before a storm strikes.



The greater the difference in air pressure between two masses of air, the stronger the wind blows. Wind is described by both its speed and direction. The direction a wind comes from determines its name. For example, if a wind is blowing from east to west, it is called an "east wind".

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The border between two different air masses is called a **front**. A cold front develops when a cold air mass collides with a warm air mass. The cold air forces the warm air to move upwards quickly and steeply. This rapid rush of air creates storm clouds. Similarly, if the wind changes direction swiftly and suddenly, heavy rain or snow is likely to fall.



A hot-air balloon rises when a flame heats the air inside the balloon. To descend, the pilot lowers the flame, allowing the hot air to cool, and the balloon moves slowly to the ground.

Think and Talk About ...

On 8 January 2000, an Austrian adventurer flew a hot-air balloon over the South Pole for the first time in history. To make this flight a success, the pilot made the balloon as lightweight as possible.

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Wind-Powered Transportation

Since ancient times, people have harnessed the strength of wind to propel sailing ships across the ocean. Sails catch the wind and enable sailors to direct the boat where they want to go. During the earlier age of exploration by sailing ships – between 1450 and 1650 – sails were made from flax fibre. By the 1800s, cotton sails were the most popular, as cotton was more tightly woven and allowed the sails to catch more wind. Today, sailboats are mainly used for recreation, and most sails are made from polyester.



Early sailors relied on the power of wind to carry their ships across the oceans.



With the wind in their sails, yachts race across Sydney Harbour, Australia.

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Land vehicles can also be powered by the force of the wind. In 2013, two German pilots drove an American-made, wind-powered car 5000 kilometres across Australia. The car had a kite-like attachment that flew out in front and pulled the car. This lightweight vehicle reached speeds of up to 90 kilometres per hour. A portable **wind turbine** in the car provided extra power.



This wind-powered car travelled 5000 kilometres across Australia. The electric engine was recharged at night, and charging the battery was the only expense connected with running this well-designed vehicle.



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Wind is moving air. People make use of wind for transport and recreation, and as a source of renewable energy. In the future, wind power is expected to provide a large part of the world's electricity supply.

Wind is also a key factor in extreme weather events, such as tornadoes and hurricanes. People study the wind in order to use its power for energy, and to protect homes and infrastructure from damaging windstorms.



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