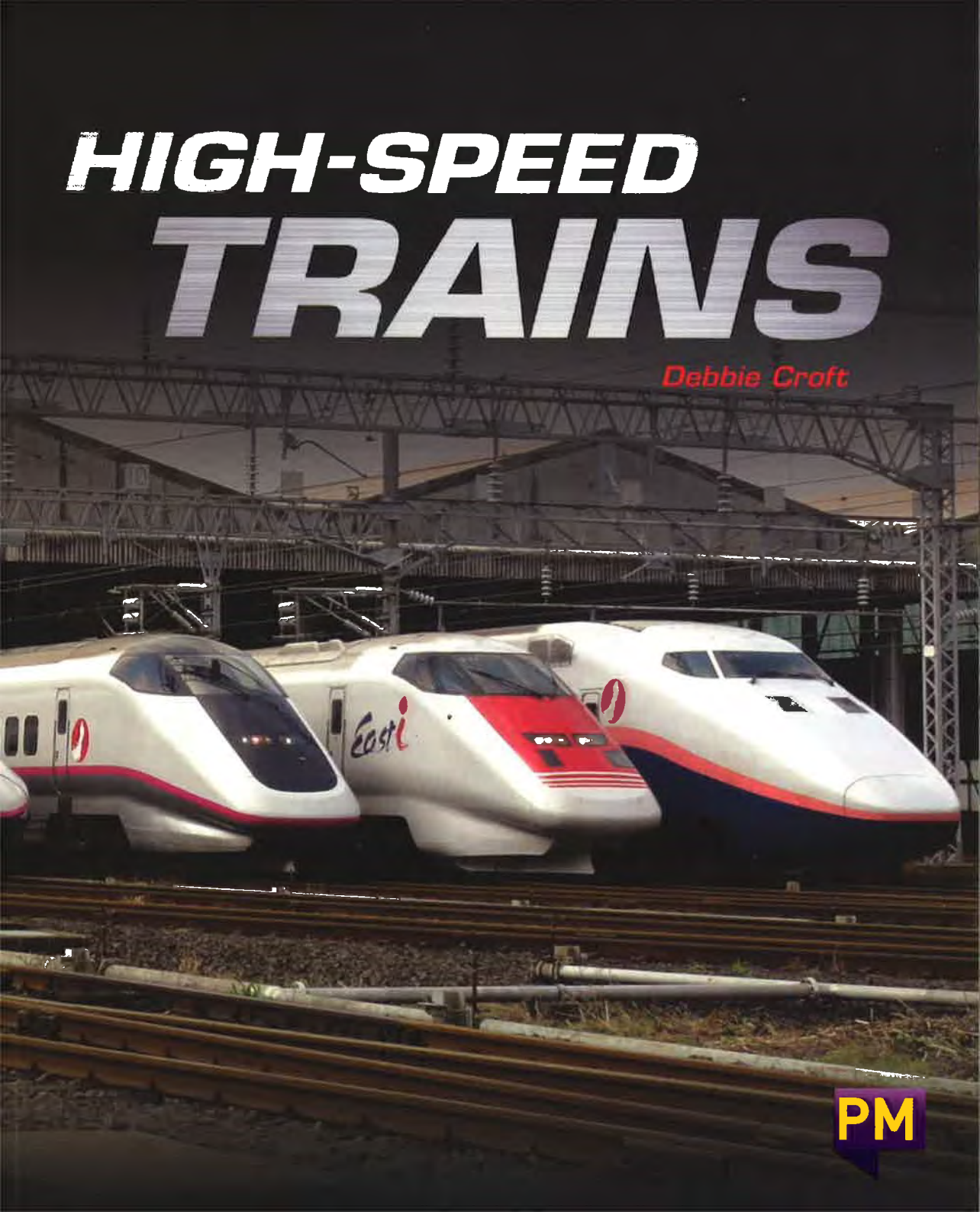
HIGH-SPEED TRAINS

Debbie Croft



PM

For teachers' inspection ONLY

High-Speed Trains

Level 26 **Curriculum Area** Science
Running Words 1540 **Text Types** Information Report (Informative) pages 2–19
Explanation (Informative) pages 20–30

Retelling to encourage critical thinking about the content

Ask each student to retell the information report and explanation 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 Which two cities does the *Eurostar* travel to from London?

Inferential

2 Why do fast trains need specially built tracks?
3 Why was Japan's first fast train called the 'bullet train'?
4 How does the tapered front of a fast train help it to travel faster?
5 Why do maglev trains cause less damage to the environment?

Applied Knowledge

6 Why does it take more time to board a plane than a train?
7 Why are fast trains only used for long-distance journeys?

Vocabulary

Replace the adjective 'insulated' in this sentence:
It is well insulated, so it provides a quiet journey for the passengers.

How the First Fast Train Was Developed

Literal

1 What special technology was needed for fast trains to operate safely?
2 How was the problem of vibration overcome on the bullet train?

Inferential

3 Why is a wider gauge track safer than a narrow gauge track?
4 Why can a train maintain a very high speed if there are no sharp curves?

Applied Knowledge

5 How did other countries react to the development of the bullet train?

Links with other PM Guided Reading Books and Cards

Level 25	Book	Information Report/Response	*Famous Bridges*
Level 26	Book	Information Report/Description	*Exploring Caves*

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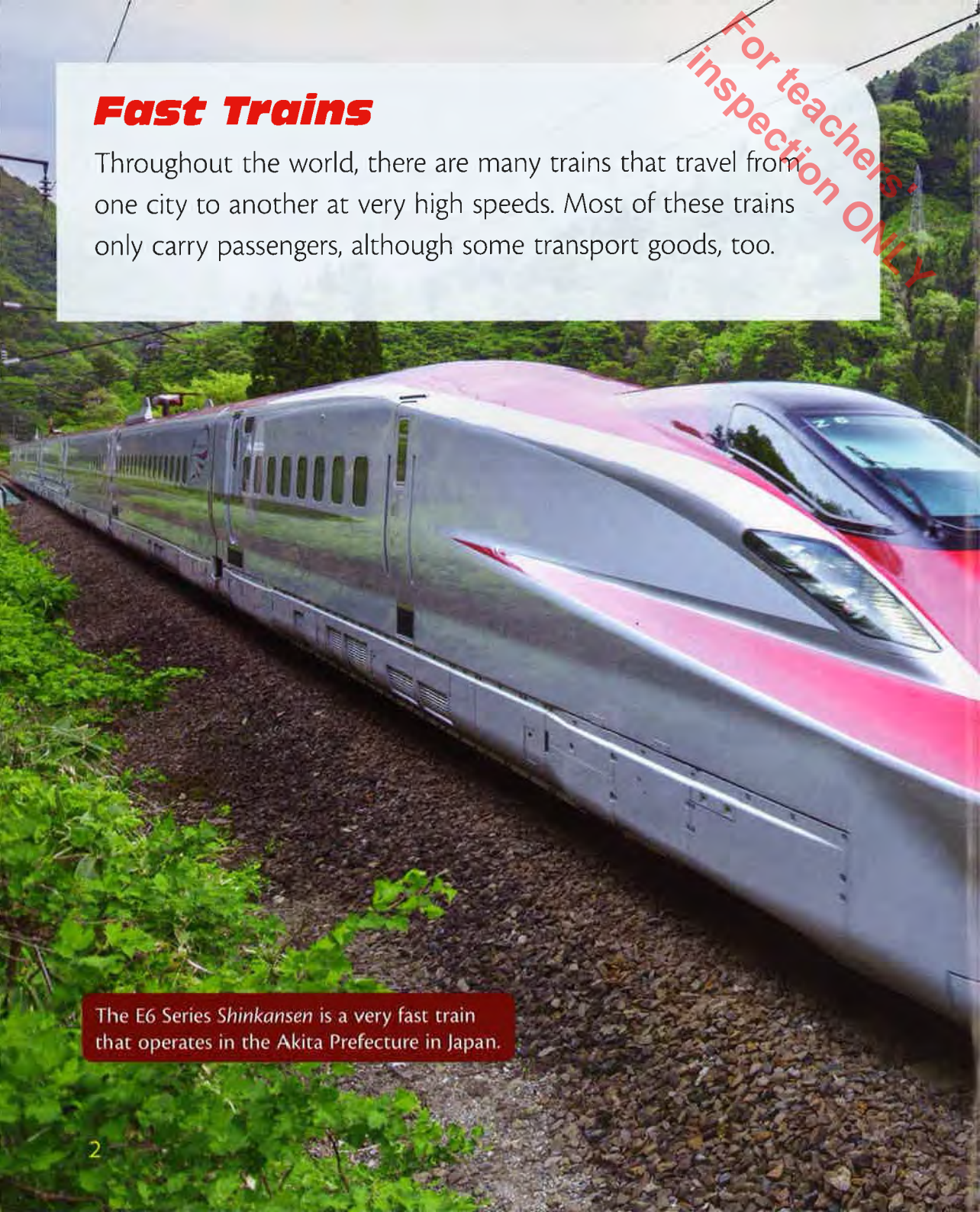
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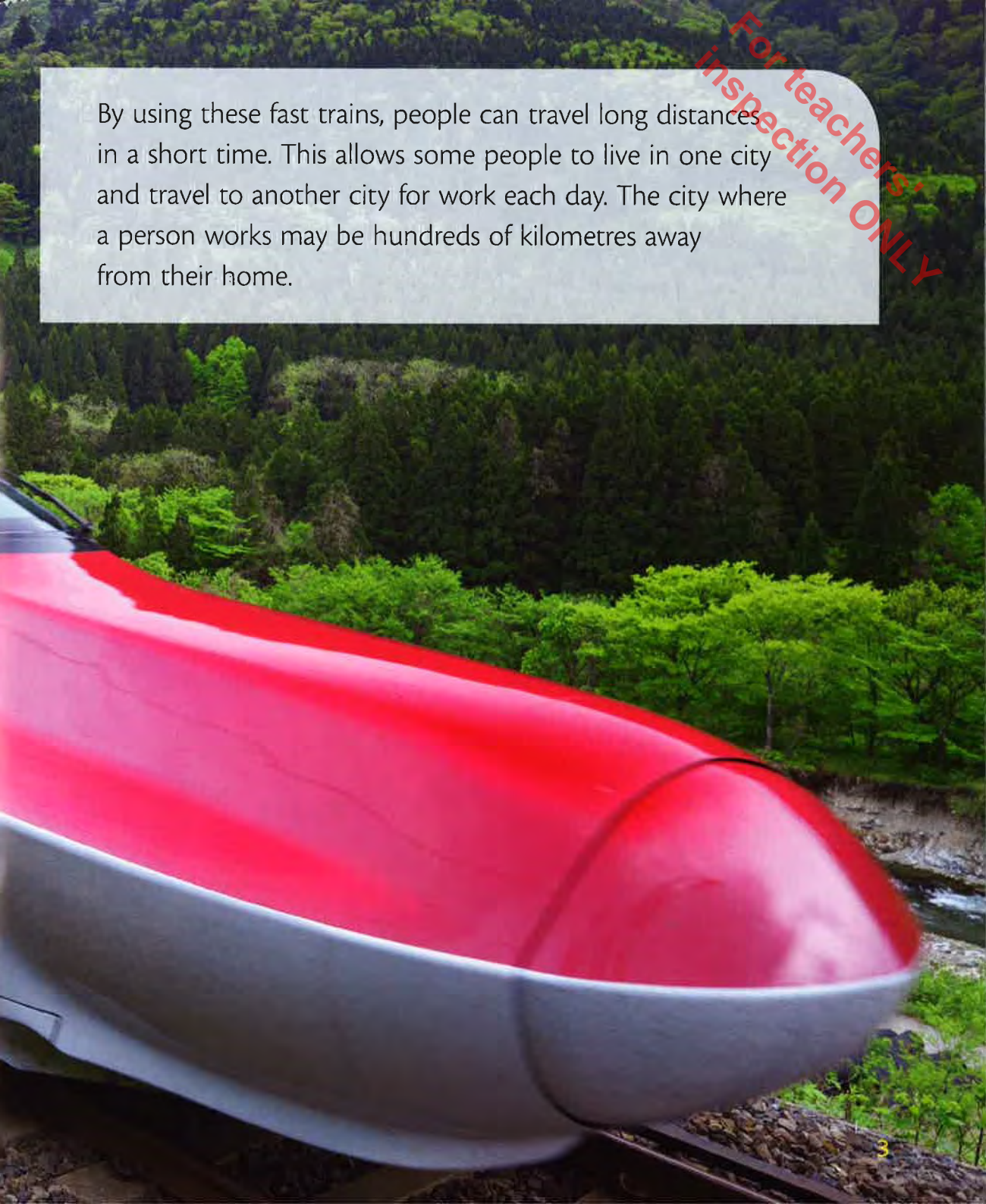
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Fast Trains

Throughout the world, there are many trains that travel from one city to another at very high speeds. Most of these trains only carry passengers, although some transport goods, too.



The E6 Series *Shinkansen* is a very fast train that operates in the Akita Prefecture in Japan.



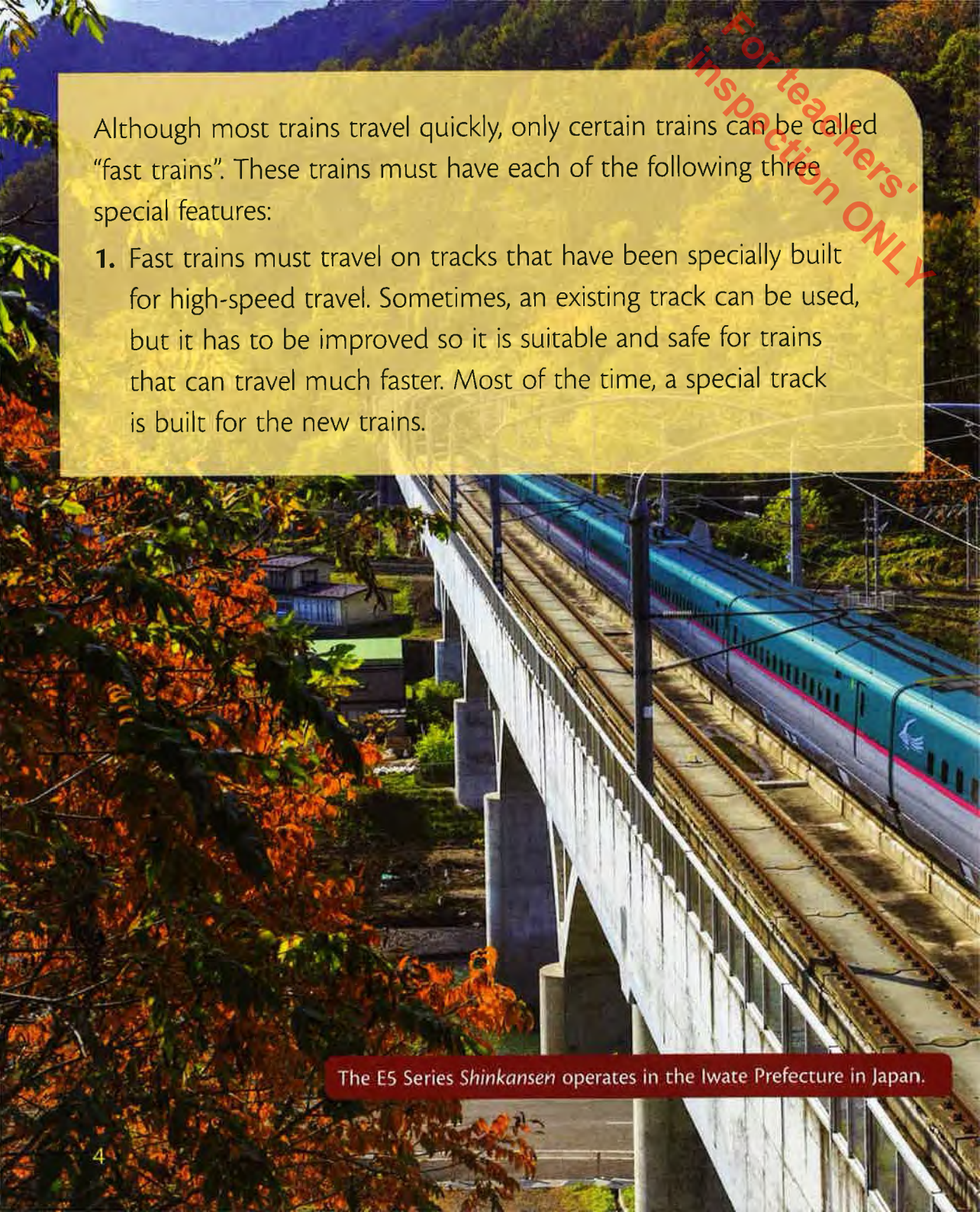
By using these fast trains, people can travel long distances in a short time. This allows some people to live in one city and travel to another city for work each day. The city where a person works may be hundreds of kilometres away from their home.

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Although most trains travel quickly, only certain trains can be called "fast trains". These trains must have each of the following three special features:

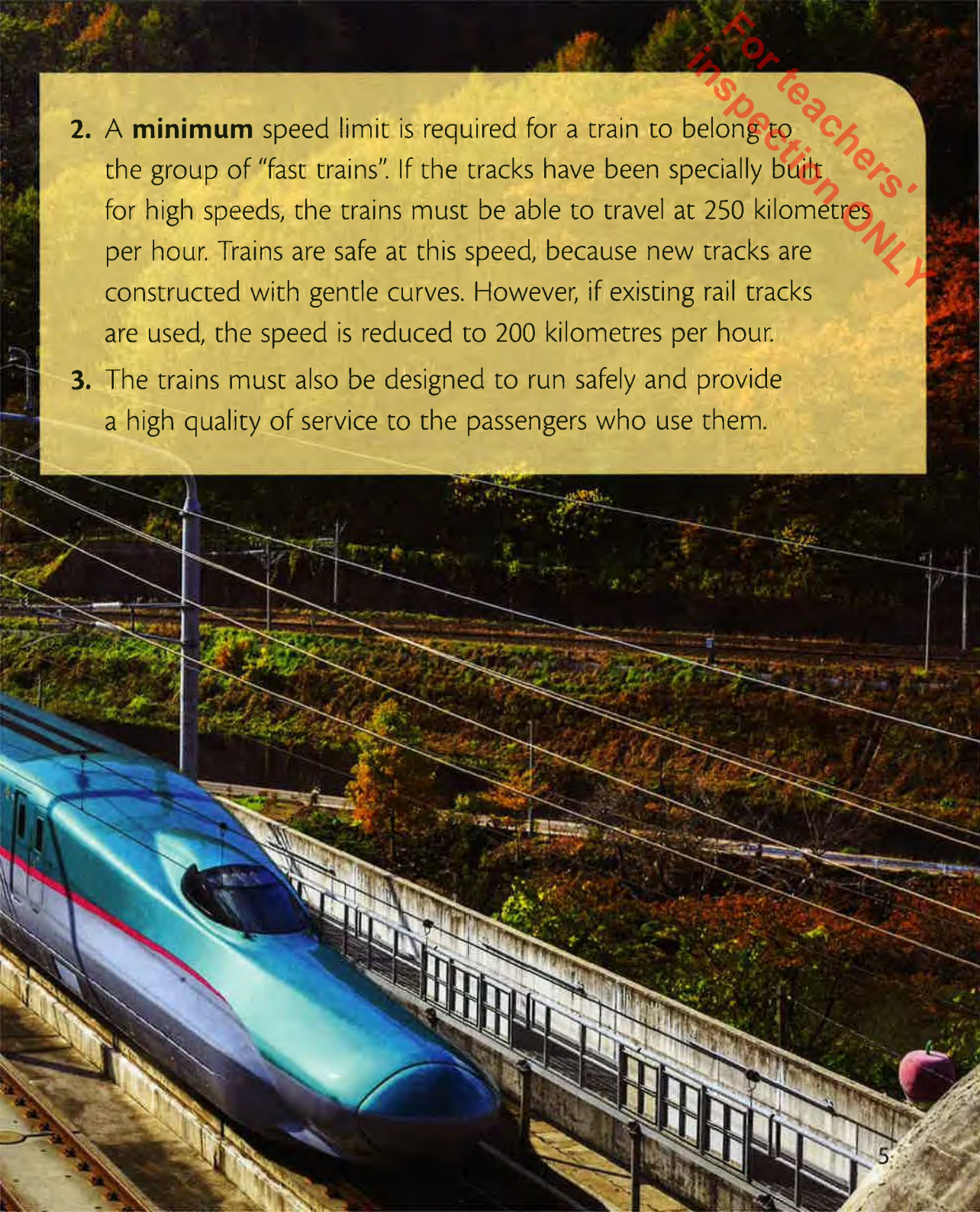
1. Fast trains must travel on tracks that have been specially built for high-speed travel. Sometimes, an existing track can be used, but it has to be improved so it is suitable and safe for trains that can travel much faster. Most of the time, a special track is built for the new trains.



The E5 Series *Shinkansen* operates in the Iwate Prefecture in Japan.

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2. A **minimum** speed limit is required for a train to belong to the group of "fast trains". If the tracks have been specially built for high speeds, the trains must be able to travel at 250 kilometres per hour. Trains are safe at this speed, because new tracks are constructed with gentle curves. However, if existing rail tracks are used, the speed is reduced to 200 kilometres per hour.
3. The trains must also be designed to run safely and provide a high quality of service to the passengers who use them.



Fast Trains Around the World

Today, Japan, China, South Korea, Taiwan, Germany, Spain, Italy, France, Belgium and the United Kingdom all have trains that belong to the special group of vehicles known as "fast trains".

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Locations of Fast Trains Around the World



The *Shinkansen*

Japan was the first country to build railway lines **specifically** for high-speed travel. Japan's first fast train line was called the *Shinkansen*. The trains on this line were nicknamed "bullet trains", because they could reach very high speeds. Unlike older trains, these trains were **tapered** at the front, to allow air to flow smoothly over the top and around the train. The bullet trains were developed in time to carry passengers from **outlying** areas into Tokyo for the 1964 Olympic Games.

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Many countries around the world have high-speed trains. Some trains run on tracks, but other trains are pulled along by special magnets.

High-speed trains are used to take people from one place to another very quickly. Sometimes, it is even faster than taking an aeroplane!



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Text Types:
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Explanation (Informative)

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