Name: _____ Date: _____

Noon Is Not Always at Twelve O'Clock

Circle group

Long ago, each town set its clocks by the sun. When the sun was highest in the sky, it was noon. The town clock said twelve. The sun is highest a little sooner in places to the east. So nearby towns had slightly different times. A town twenty miles east might have noon a few minutes before yours.

That was fine when people traveled slowly. Then railroads came in the 1800s. A train might pass through a dozen towns in one day. Each town had its own time. Train schedules were a mess, and people missed their trains.

The fix was time zones. The world was split into wide bands. Every place in one band uses the same time. Now a traveler does not have to change a watch at every town.

But the sun no longer matches the clock exactly. In a zone, the sun is highest sooner on the east side. Some places see the sun highest well before twelve. Others see it well after. Many places also move clocks forward in summer. That pushes the sun's highest point later on the clock. So if your shadow is shortest at one o'clock, nothing is wrong. The clock follows the zone.

Questions

1. How did towns long ago know it was noon?

_____

_____

2. Why did railroads cause a problem?

_____

_____

3. What fixed the problem?

_____

_____

4. Why might the sun be highest at one o'clock?

_____

_____

5. Which side of a zone sees the sun highest sooner?

_____

_____

6. Why was local sun time fine before railroads?

_____

_____

Words to know

schedules: lists that show when things will happen
railroads: tracks that trains run on, and the companies that run them
zones: areas set apart for a certain purpose

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Noon Is Not Always at Twelve O'Clock

Triangle group

Long ago, every town set its clocks by the sun. When the sun reached its highest point in the sky, it was noon, and the town clock said twelve. Because the sun reaches its highest point a little earlier in places to the east, nearby towns had slightly different times. A town twenty miles to the east might say noon a few minutes before yours did.

That was fine when people traveled slowly. Then railroads arrived in the 1800s. A train might pass through a dozen towns in a day, and each one had its own local time. Train schedules became a confusing mess, and passengers kept missing their rides.

The solution was time zones. The world was divided into wide bands, and every place inside one band agreed to use the same time. Now a traveler can cross a whole region and not have to change a watch at every town.

Time zones are handy, but they mean that the sun no longer matches the clock exactly. In a zone, the sun reaches its highest point earlier in the east side than in the west side. Some places see the sun highest well before twelve, and others see it well after. Many places also move their clocks forward in summer, which pushes the sun's highest point even later on the clock. So if you hold a stick up in the sunshine and the shadow is shortest at one o'clock, nothing is wrong. The clock is simply following the rules of the zone.

Questions

1. How did towns long ago decide when it was noon?

_____

_____

2. Why did railroads cause a problem with local times?

_____

_____

3. What was the solution to the problem?

_____

_____

4. Why might the sun be highest at one o'clock instead of twelve?

_____

_____

5. Which side of a zone sees the sun highest earlier, the east or the west?

_____

_____

6. Why was local sun time fine before railroads?

_____

_____

Words to know

schedules: lists that show when things will happen
railroads: tracks that trains run on, and the companies that run them
zones: areas set apart for a certain purpose
passengers: people who ride in a train, bus, or plane
region: a large area of land

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Noon Is Not Always at Twelve O'Clock

Square group

Centuries ago, every town regulated its clocks by the sun. When the sun reached its highest point in the sky, it was noon, and the town clock was set to twelve. Because the sun peaks slightly earlier in places farther east, neighboring towns kept slightly different times, and a town twenty miles to the east might announce noon a few minutes before yours did.

This arrangement worked perfectly well while people traveled slowly. Then, in the 1800s, railroads spread across the land. A single train might pass through a dozen towns in one day, and every one of them kept its own local time. Train schedules became a bewildering tangle, and passengers frequently missed their rides.

The solution was the creation of time zones. The world was divided into wide bands, and every place within a band agreed to share the same time. As a result, a traveler can cross an entire region without adjusting a watch at every town along the way.

Time zones are enormously convenient, but they mean that the sun no longer lines up exactly with the clock. Within a zone, the sun reaches its highest point earlier on the eastern side than on the western side, so some places see it peak well before twelve and others well after. Many places also move their clocks forward during summer, which pushes the sun's peak even later on the clock. If your shadow is shortest at one o'clock, therefore, nothing is wrong. The clock is simply obeying the rules of the zone.

Questions

1. How did towns centuries ago decide when it was noon?

_____

_____

2. Why did the spread of railroads create a problem with local times?

_____

_____

3. What was the solution to the problem?

_____

_____

4. Why might the sun peak at one o'clock rather than twelve?

_____

_____

5. Which side of a zone sees the sun reach its highest point earlier?

_____

_____

6. Why did local sun time work well before railroads?

_____

_____

Words to know

schedules: lists that show when things will happen
railroads: tracks that trains run on, and the companies that run them
zones: areas set apart for a certain purpose
passengers: people who ride in a train, bus, or plane
region: a large area of land

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Noon Is Not Always at Twelve O'Clock

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Noon Is Not Always at Twelve O'Clock

Easier · 202 words · Flesch-Kincaid grade 2.9

1. The sun was at its highest point in the sky.
2. Trains passed through many towns that each had their own time, so schedules were confusing.
3. Time zones, where every place in a wide band uses the same time.
4. Clocks follow the zone, not the sun, and many places move clocks forward in summer.
5. The east side.
6. People traveled slowly, so small differences between towns did not matter much.

Triangle: Noon Is Not Always at Twelve O'Clock

This passage · 253 words · Flesch-Kincaid grade 5.7

1. When the sun reached its highest point in the sky.
2. A train passed through many towns that each had their own time, so schedules were confusing.
3. Time zones, where every place in a wide band uses the same time.
4. Clocks follow the zone's time, not the sun, and many places move clocks forward in summer.
5. The east side.
6. People traveled slowly, so they did not often notice the small differences between towns.

Square: Noon Is Not Always at Twelve O'Clock

Harder · 255 words · Flesch-Kincaid grade 7.9

1. When the sun reached its highest point in the sky.
2. A train passed through many towns that each kept their own time, so schedules became confusing.
3. Time zones, in which every place within a wide band shares the same time.
4. Clocks follow the zone's time rather than the sun, and many places move clocks forward in summer.
5. The eastern side.
6. People traveled slowly, so they rarely noticed the small differences between towns.