Name: _____ Date: _____

# Tick, Tock, Catch: The Escapement in a Clock

Circle group

A heavy weight on a cord wants to fall to the floor. In an old pendulum clock, the falling weight gives the power. If nothing held it back, the weight would crash down in seconds. The gears would spin wildly. A small part called an escapement lets the weight fall in tiny, even steps.

The escapement has two main pieces. One is a wheel with sharp, slanted teeth. The other is a rocking piece, often shaped like an anchor. It swings back and forth over the wheel. One end catches a tooth and holds the wheel still. Then the rocker swings back and lets go. A moment later it catches the next tooth.

A pendulum controls the swinging. A pendulum is a rod with a weight at the bottom. Each swing takes the same time. A famous story says Galileo found this out. Each swing lets the wheel move one tooth.

The tick and tock are the sounds of the catch and release. The wheel then moves the clock hands at a steady pace. Without it, the hands would race around.

## Questions

**1. What gives the power in an old pendulum clock?**

_____

_____

**2. What are the two main pieces of an escapement?**

_____

_____

**3. What controls the swinging of the rocking piece?**

_____

_____

**4. What are the tick and tock sounds?**

_____

_____

**5. What would the weight do without the escapement?**

_____

_____

**6. Why is a pendulum good for keeping time?**

_____

_____

## Words to know

escapement: a part that lets a clock's gears move one step at a time
pendulum: a weight that swings back and forth on a rod
slanted: tilted at an angle
release: to let go of something
steady: even and regular, not changing

## 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: _____

# Tick, Tock, Catch: The Escapement in a Clock

Triangle group

A heavy weight on a cord wants to drop to the floor. In an old pendulum clock, that falling weight supplies the power. If nothing held it back, the weight would crash down in seconds and spin the gears wildly. Instead, a small part called an escapement lets the weight fall in tiny, regular steps.

The escapement has two main pieces. The first is a wheel with sharp, slanted teeth. The second is a rocking piece, often shaped like an anchor, that swings back and forth over the wheel. As it rocks, one end catches a tooth and holds the wheel still. Then the rocker swings the other way, releases that tooth, and catches the next one a moment later.

The swinging is controlled by a pendulum, a rod with a weight at the bottom. A pendulum takes the same amount of time for each swing. This was a discovery made by a scientist named Galileo, according to a famous story. Each swing lets the wheel advance by exactly one tooth.

The tick and tock you hear are the sounds of the escapement catching and releasing. The wheel then moves the hands of the clock at a steady pace. Without it, the hands would race around. Because of this small clever part, a heavy weight can measure the hours very calmly.

## Questions

**1. What supplies the power in an old pendulum clock?**

_____

_____

**2. What are the two main pieces of an escapement?**

_____

_____

**3. What controls the swinging of the rocking piece?**

_____

_____

**4. What are the tick and tock sounds?**

_____

_____

**5. What would happen to the weight if the escapement were missing?**

_____

_____

**6. Why is a pendulum good for keeping time?**

_____

_____

## Words to know

escapement: a part that lets a clock's gears move one step at a time
pendulum: a weight that swings back and forth on a rod
slanted: tilted at an angle
release: to let go of something
steady: even and regular, not changing

## 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: _____

# Tick, Tock, Catch: The Escapement in a Clock

Square group

A heavy weight dangling from a cord naturally wants to plunge toward the floor. In an old pendulum clock, that falling weight supplies the power. If nothing restrained it, the weight would crash down within seconds and send the gears spinning wildly. Instead, a small component called an escapement permits the weight to descend in tiny, regular steps.

The escapement consists of two main pieces. The first is a wheel with sharp, slanted teeth. The second is a rocking piece, often shaped like an anchor, that swings back and forth over the wheel. As it rocks, one end catches a tooth and holds the wheel motionless. Then the rocker swings in the opposite direction, frees that tooth, and catches the next one a moment later.

The swinging is regulated by a pendulum, a rod with a weight at its lower end. A pendulum takes the same amount of time to complete each swing, a discovery that, according to a famous story, was made by a scientist named Galileo. Every swing allows the wheel to advance by precisely one tooth.

The tick and tock you hear are the sounds of the escapement catching and releasing. The wheel in turn moves the hands of the clock at a steady pace. Without this part, the hands would race around the dial. Thanks to one small, ingenious piece, a heavy weight can measure the hours very calmly.

## Questions

**1. What supplies the power in an old pendulum clock?**

_____

_____

**2. What are the two main pieces that make up an escapement?**

_____

_____

**3. What regulates the swinging of the rocking piece?**

_____

_____

**4. What are the tick and tock sounds that you hear?**

_____

_____

**5. What would happen to the weight if the escapement were absent?**

_____

_____

**6. Why is a pendulum well suited to keeping time?**

_____

_____

## Words to know

escapement: a part that lets a clock's gears move one step at a time
pendulum: a weight that swings back and forth on a rod
slanted: tilted at an angle
steady: even and regular, not changing

## 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: Tick, Tock, Catch: The Escapement in a Clock

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

### Circle: Tick, Tock, Catch: The Escapement in a Clock

Easier · 181 words · Flesch-Kincaid grade 2.6

1. A falling weight on a cord.
2. A wheel with slanted teeth and a rocking piece.
3. A pendulum.
4. The escapement catching and letting go of the teeth.
5. It would fall fast and spin the gears wildly.
6. Each swing takes the same amount of time.

### Triangle: Tick, Tock, Catch: The Escapement in a Clock

This passage · 221 words · Flesch-Kincaid grade 5.1

1. A falling weight on a cord.
2. A wheel with slanted teeth and a rocking piece.
3. A pendulum.
4. The escapement catching and releasing the teeth.
5. It would drop quickly and spin the gears wildly.
6. Each of its swings takes the same amount of time.

### Square: Tick, Tock, Catch: The Escapement in a Clock

Harder · 233 words · Flesch-Kincaid grade 6.7

1. A falling weight on a cord.
2. A wheel with slanted teeth and a rocking piece.
3. A pendulum.
4. The escapement catching and releasing the teeth.
5. It would drop quickly and send the gears spinning wildly.
6. Each of its swings takes the same amount of time.