Name: _____ Date: _____

# The Quiet Float That Refills the Toilet Tank

Circle group

Lift the lid off a toilet tank and you will find a small, clever machine. It has worked in homes for over a hundred years. It has one job. It fills the tank with the right amount of water and then stops. Nobody has to watch it or turn it off.

The machine has two main parts. One is the flush valve at the bottom. It is a rubber flap that covers the drain hole. The other is the fill valve, which lets in fresh water from the supply pipe. A float tells the fill valve when to stop. The float may be a ball on an arm or a cup that slides up a pole.

When you press the handle, a chain lifts the flap. Water rushes out of the tank into the bowl, and the water level drops fast. The float rests on the water, so it drops too. That movement opens the fill valve, and fresh water starts to flow in.

Then the flap falls back into place, and the tank starts to fill. The float rises with the water. A lever carries the movement to the valve. At the right height, the float pushes the lever far enough to shut the valve. The water stops, and the tank is ready again.

Engineers added a safety feature too. A tall overflow tube stands in the tank. It is taller than the water should ever be. If the float fails, the extra water spills down the tube into the bowl and not onto the floor. Like the governor on a steam engine, the float is a small feedback machine. It uses the water level to decide when to stop.

## Questions

**1. What is the one job of the toilet tank machine?**

_____

_____

**2. What does the rubber flap at the bottom cover?**

_____

_____

**3. What opens the fill valve after a flush?**

_____

_____

**4. What does the overflow tube do if the float fails?**

_____

_____

**5. Why does the float rise as the tank fills?**

_____

_____

**6. Why is the float compared to a governor on a steam engine?**

_____

_____

## Words to know

float: a light object that rests on top of a liquid
valve: a part that opens and closes to control flow
overflow: extra liquid that spills over the top
supply: an amount of something that is provided for use

## 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: _____

# The Quiet Float That Refills the Toilet Tank

Triangle group

Lift the lid off a toilet tank and you will find a small, ingenious machine that has been working in homes for well over a century. Its single responsibility is to fill the tank with exactly the right amount of water and then stop, and nobody has to watch it or turn it off.

The machine has two main assemblies. One is the flush valve at the bottom, a rubber flap that covers the drain opening, and the other is the fill valve, which brings fresh water in from the supply pipe. A float, either a ball on an arm or a cup that slides up a pole, tells the fill valve when to stop.

When you press the handle, a chain lifts the flap, water rushes out of the tank into the bowl, and the level in the tank drops quickly. Because the float rests on the surface, it falls along with the water, and that movement opens the fill valve so that fresh water begins to flow in.

Once the flap drops back into place, the tank starts to refill, and the float rises with the water. A lever or linkage carries the movement to the valve, and at the correct height the float has pushed the lever far enough to shut the valve completely. The water stops, and the tank is ready for the next use.

Engineers added a safety feature as well. A vertical overflow tube stands in the tank, taller than the water level should ever be, so if the float ever fails, the extra water spills down the tube and into the bowl instead of onto the floor. Like the governor on a steam engine, the float is a tiny feedback machine that uses the water level itself to decide when to stop.

## Questions

**1. What is the single job of the toilet tank machine?**

_____

_____

**2. What does the rubber flap at the bottom of the tank cover?**

_____

_____

**3. What opens the fill valve after a flush?**

_____

_____

**4. What does the overflow tube do if the float fails?**

_____

_____

**5. Why does the float rise as the tank refills?**

_____

_____

**6. Why is the float compared to a governor on a steam engine?**

_____

_____

## Words to know

float: a light object that rests on top of a liquid
valve: a part that opens and closes to control flow
linkage: a set of connected bars that pass motion along
overflow: extra liquid that spills over the top
supply: an amount of something that is provided for use

## 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: _____

# The Quiet Float That Refills the Toilet Tank

Square group

Lift the lid off a toilet tank and you will discover a small, ingenious machine that has been working quietly in homes for well over a century. Its single responsibility is to fill the tank with exactly the right quantity of water and then to stop, and nobody ever has to watch it or turn it off.

The machine consists of two main assemblies. One is the flush valve at the bottom, a rubber flap that covers the drain opening. The other is the fill valve, which brings fresh water in from the supply pipe. A float, which may be either a ball on an arm or a cup that slides up a pole, informs the fill valve when to stop.

When you press the handle, a chain lifts the flap, water rushes out of the tank into the bowl, and the level in the tank drops rapidly. Because the float rests on the surface, it falls along with the water, and that downward movement opens the fill valve so that fresh water begins to flow in.

Once the flap drops back into place, the tank starts to refill, and the float gradually rises with the water. A lever or linkage carries the movement to the valve, and at the correct height the float has pushed the lever far enough to shut the valve completely, so the flow ceases and the tank is ready for its next use.

Engineers added a thoughtful safety feature as well. A vertical overflow tube stands in the tank, taller than the water level should ever be, so that if the float ever fails, the surplus water spills down the tube and into the bowl instead of onto the floor. Like the governor on a steam engine, the float is a tiny feedback machine that uses the water level itself to decide when to stop.

## Questions

**1. What is the single responsibility of the toilet tank machine?**

_____

_____

**2. What does the rubber flap at the bottom of the tank cover?**

_____

_____

**3. What opens the fill valve after a flush?**

_____

_____

**4. What does the overflow tube do if the float ever fails?**

_____

_____

**5. Why does the float rise as the tank refills?**

_____

_____

**6. Why is the float compared to the governor on a steam engine?**

_____

_____

## Words to know

float: a light object that rests on top of a liquid
valve: a part that opens and closes to control flow
linkage: a set of connected bars that pass motion along
overflow: extra liquid that spills over the top
supply: an amount of something that is provided for use

## 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: The Quiet Float That Refills the Toilet Tank

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

### Circle: The Quiet Float That Refills the Toilet Tank

Easier · 281 words · Flesch-Kincaid grade 3.2

1. To fill the tank with the right amount of water and then stop.
2. The drain hole.
3. The float dropping as the water level drops.
4. It lets extra water spill into the bowl and not onto the floor.
5. It rests on the water, so it moves up with the water level.
6. Both use the thing they control to decide when to adjust, which is feedback.

### Triangle: The Quiet Float That Refills the Toilet Tank

This passage · 299 words · Flesch-Kincaid grade 9

1. To fill the tank with the right amount of water and then stop.
2. The drain opening.
3. The float falling as the water level drops.
4. It lets extra water spill into the bowl instead of onto the floor.
5. It rests on the water's surface, so it moves up with the water level.
6. Both use the thing they control to decide when to adjust, which is feedback.

### Square: The Quiet Float That Refills the Toilet Tank

Harder · 310 words · Flesch-Kincaid grade 9.7

1. To fill the tank with exactly the right quantity of water and then stop.
2. The drain opening.
3. The float falling as the water level in the tank drops.
4. It lets the surplus water spill into the bowl instead of onto the floor.
5. It rests on the surface of the water, so it moves up with the water level.
6. Both use the thing they control to decide when to adjust, which is feedback.