

# Treating Tampa's Water

GRADE 3-5 SCIENCE

**The boys in the Scout troop were excited to be going on a field trip,** even though the purpose of the trip was to pick up litter along the Hillsborough River.

“OK, boys,” said Mr. Patterson, the troop leader. “We need to pick up all the litter we see so we can keep our water clean!”

“I don’t get it, Mr. Patterson,” said Ricky. “Who cares if the river’s dirty? It’s all filled with mud and fish and bugs anyway!”

All the boys laughed and Mr. Patterson explained. “Believe it or not, the Hillsborough River is the main source of our drinking water here in Tampa.”

“Ewww!” the boys exclaimed, “we drink that?!”

“Well, not exactly,” said Mr. Patterson. “The water from the river is collected and cleaned at a treatment facility. Once it goes through a 6-step process, it’s ready for us to drink safely.”

As the boys started to walk along the river picking up any litter they saw, Mr. Patterson went on to describe the 6-step process for cleaning the water.

“You see,” said Mr. Patterson, “This water flows into a reservoir and water is pumped from it into the treatment plant. It passes through screens that keep hyacinths and other floating debris from entering the treatment plant.”

“Well that’s good,” said Eric, picking up a soda can. “I wouldn’t want this to be in our drinking water!”

“What happens once it gets to the treatment plant?” asked Ricky.

“There are six steps,” said Mr. Patterson. “In the first step, chemicals are added to the water that react with natural matter in the river water. It forms a substance called floc.”



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"Then, polymers are added to the water and the floc gets bigger and heavier. This is called 'flocculation.' The third step then is to flow the water into rectangular settling basins and the floc settles on the bottom. Clear, settled water is collected at the end of the settling basins and the floc is vacuumed up and treated and removed."

"And then we drink it?" asked Eric.

"Nope," said Mr. Patterson. "There are still three more steps."

"The fourth step is for stabilization and disinfection. The clear, settled water is treated with ozone that kills any harmful bacteria or viruses in the water. It also makes the water taste better and smell better. Lime and fluoride is added to the water at this stage, too."

"Fluoride? Isn't that what's in toothpaste" asked Ricky.

"Yes," said Mr. Patterson. "Fluoride is added to the water for dental benefits. In step five, the disinfected water is filtered one more time to remove any remaining particles. THEN, in the final disinfection stage, chlorine and ammonia are added and the water is put in storage."

"So," said Eric. "We drink it then?"

"Yes," said Mr. Patterson, laughing. "High service process pumps send the finished water from storage to distribution to people all over Tampa."

"Wait, " chimed in Dennis. "If they're adding all these chemicals to it, are we just drinking a bunch of chemicals?"

Not at all, Dennis," said Mr. Patterson. "In fact, the City of Tampa delivers drinking water of higher quality than required by all state and federal standards."

"The City constantly tests and analyzes the water in its state-certified laboratory. Once a year, the Water Department prepares a Water Quality Report and sends it out to all its customers," said Mr. Patterson. "Really, we're very lucky to live in the City of Tampa and have the Hillsborough River as our drinking source. Now, let's get to our clean-up!"



### Sunshine State Standards:

How Living Things Interact with their Environment Standard, 1.2

Processes that Shape the Earth Standard, 1.3

The Nature of Science Standard, 3.4

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Name \_\_\_\_\_ Date \_\_\_\_\_

**Complete these sentences with these vocabulary words:**

Hillsborough River	Basins	floc	filter
ozone	Reservoir	6-step process	fluoride

1. The City of Tampa uses a \_\_\_\_\_ to treat our water.
2. \_\_\_\_\_ is added to the water to help kill bacteria.
3. Our main source of drinking water is from the \_\_\_\_\_  
\_\_\_\_\_.
4. Hyacinths and other debris is kept outside the treatment plant as the water passes through a \_\_\_\_\_.
5. Water collected in the \_\_\_\_\_ enters the treatment plant.
6. \_\_\_\_\_ is added to our drinking water to help our teeth.
7. At the treatment plant, the water is in large \_\_\_\_\_ as it flows through the treatment process.
8. Chemicals are added to the raw water, which reacts with organisms and creates a solid called \_\_\_\_\_.



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Name \_\_\_\_\_ Date \_\_\_\_\_

F	L	U	O	R	I	D	E	R	A	N	K	E	V	E
T	W	B	C	Z	D	W	I	M	Y	A	I	H	N	V
D	W	O	N	U	H	O	M	N	K	U	E	S	R	P
T	L	J	Q	V	V	O	X	P	C	I	N	C	A	D
F	A	W	P	R	N	T	L	K	Z	S	O	G	X	B
B	A	T	E	I	F	U	H	F	L	H	Z	D	Q	N
P	B	S	A	T	T	C	C	A	P	C	O	Q	W	W
F	E	G	N	V	F	H	U	Q	I	A	G	R	I	Y
R	I	B	V	G	L	L	E	G	A	R	O	T	S	G
N	V	L	Y	C	A	O	J	N	C	I	X	U	R	I
V	M	P	T	E	T	R	N	G	Y	N	G	L	N	N
C	I	S	M	E	A	I	R	R	Y	Y	F	M	Q	P
I	E	R	L	E	R	N	S	D	A	R	N	Y	L	F
Y	W	C	B	J	Z	E	L	I	M	E	S	M	G	C
S	A	K	P	N	T	U	D	R	O	E	L	M	B	Y

AMMONIA  
BASIN  
CHLORINE  
FILTERED

FLOC  
FLUORIDE  
LIME  
OZONE

RESERVOIR  
STORAGE



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Name \_\_\_\_\_ Date \_\_\_\_\_

Find your way through the waves to the water treatment plant.

Start

End



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