

Follow the spiral

How Drill Bits Work

Name _____

Date _____



Little Wonderer leaned toward the magnifier. A drill bit rested on the bench. This metal rod had a spiral shape that wound around and along it. “Why all the twists?” Little asked. Big pointed to the tip. Its cutting lips are edges that shave off tiny bits of material as the bit turns.



Big slowly turned a screw into a bar of soap by hand. Little watched a pale curl gather beside it. A screw thread is a spiral ridge around a screw. As it turns against the material, the sloping thread helps pull the screw farther in. Turning can make something move along, too.



Their cutaway display showed inside a hole. The drill bit’s sharp tip and cutting lips made small shavings called chips. Its spiral grooves, called flutes, gave those chips a path up and out as the bit turned. “Like a spiral slide going up!” said Little. The hole needed room for the next chips.

drill bit	a tool that turns to make a hole
spiral	a shape that winds around and along a center
flute	a groove that carries chips out of a drilled hole
cutting lip	an edge at a drill bit’s tip that shaves material
chips	small bits shaved off a material
screw thread	a spiral ridge around a screw
auger	a tool with a broad spiral for making holes and lifting loose material

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At the garden bench, Big showed Little an auger. An auger is a tool with a broad spiral for making holes in soil or ice. Its lower edge loosens material. Turning lifts the loose bits along the spiral. Little traced the path in the notebook: around, up, and out of the hole.



Back at the table, a sloping tube joined a low bowl to a high cup. Inside was an Archimedes screw, a large spiral that can lift water. Big turned its handle. Pockets of water rode up between the spiral and the tube. Little watched water reach the cup above the bowl.



Little found more turning tools. A corkscrew spirals into a cork to pull it out. Egg-beater gears make a hand-crank spin the beaters faster. A hand sharpener shaves pencil curls. Little drew a spiral. "Why does a spiral move things when it spins?"

1. Why do cutting lips and flutes need to work together?
2. How is a screw thread different from a drill bit's flute?
3. How are an auger and an Archimedes screw alike?

Your turn

Write one command sentence for the soap test.

Example: Turn the screw slowly into the soap, then look at the curls on the thread.
