

	Nom :	Date :	
	Classe Européenne <i>Hammer drill</i>	Cours	<u>Note :</u>
		1 <sup>ère</sup> – 1 <sup>ale</sup>	
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Video scenario:

The hammer drill, the trigger switch, the hammer action selector, an electric motor, at the end of the motor shaft there is the first gear that is in contact with the second gear. Attached to the second gear, the chuck assembly and the drill bit. To understand how the hammer drill pierces wood and concrete just as easily, we've got to break it apart.

Push that trigger switch and the motor starts. It can attain the speed of 27000 revolutions per minute. This rotary motion engages the first gear, a small gear that transmits the rotary motion to the much bigger second gear. Attached to the end of the second gear the chuck assembly now has enough force and enough speed to turn the drill bit. The drill bit is a knife. With the circular motion, its helicoidally shape also allows it to clear away the bits of debris. As it turns it pushes away the debris which climbs up the grooves until its remove from the hole.

There is no way concrete can be cut the way wood is cut. The drill bit would wear away without even piercing it. To pierce concrete the drill must hit it to break it. Once it's feeding with the drill bit for concrete, all its need is to engage the percussion mode, move the selector switch and that moves a plate with a hole on it. This movement aligns the hole with the second gears axis. The casing drops of a few fraction of an inch down onto the axis. The ridges at the back of the gear insert themselves into the ridges of the metallic plate above. Squeeze that trigger switch and the motor starts. That turns the first gear which turns the second gear. The ridges at the back of the second gear slide along the metallic plates ridges. This moves the casing away. That casing falls back violently push by the way of the drill operator. And it all happens over and over again. At maximum speed, that's more than 43000 impacts per minute. A real jackhammer that cracks the concrete. Now the drill bit can bite into that crack concrete. As that bit turns it expels the debris from the hole and drives steeper into the concrete almost like it was drilling into the butter.