MANUFACTURING TECHNIQUES - ACTIVITIES

Read the dialogue and answer the questions:

Peter: Most of what we do is sheet metal working. We don't do foundry work – you know, casting and that type of thing. That's obviously a different discipline. But apart from that, we're equipped to do most things to do with metal bashing.

Mr Smith: That's the technical term for it, isn't it?

Peter: I'm not sure what the technical definition of metal bashing would be. A collective term for hammering, grinding and generally making a lot of noise, probably.

Mr Smith: It's not that noisy in here, is it?

Peter: No, it's not too bad. We had a specialist firm come in a while ago to measure noise levels at each machine – you know, for health and safety regulations. A lot of what we do isn't all that noisy. Things like drilling and milling machines are not too bad, relatively speaking. Anything involving abrasives tends to be noisy, things like grinders, even if they're only hand tools. And that big press over there makes a loud bang when they're shearing steel. It certainly saves a lot of time, though, compared with flame cutting, or sawing with a grinder blade.

Mr Smith: So, it's a guillotine?

Peter: That's what we use it for mostly, yes.

ACTIVITIES:

1. Say if the following sentences are true or false according to the text:

	T / F
• The company specialises in sheet metal working.	
• The company does a lot of metal casting.	
• Metal bashing is a precise technical term for hammering.	
• Drills and milling machines are always noisy.	
• Grinding is a process that uses abrasives.	
• The press is used for shearing metal.	

2. Complete the following text using the words in the box.

Drilling	Flame-cutting	Milling	Sawing	Shearing

CUTTING OPERATIONS

Key factors in determining the most appropriate cutting technique are: material characteristics (notably hardness, and thermal and electricity properties), component thickness, component shape and complexity, required edge quality and production volume. Select cutting options below for a detailed analysis of techniques.

CUTTING OPTIONS

(a) _____ : abrasive cutting, removing a kerf of material. Includes cutting with toothed blades and abrasive wheels.

(b) _____ : use of pressure on smooth-edged blades for guillotining and punching.

(c) _____ : removal of material across the full diameter of a hole, or using hole-saws for cutting circumferential kerfs.

(d) _____ : removal of surface layers with multiple cutting wheel passes.

(e) _____ : using oxy fuel (oxygen + combustible gas, often acetylene)

3. Complete the following definitions using the words in the box.

abrasive wheel	guillotine	hole-saw	kerf	punch	toothed blade

1. A/an _____ makes holes by applying pressure to shear the material.
2. A/an _____ makes straight cuts by applying pressure to shear the material.
3. A/an _____ is the width of the saw cut.
4. A/an _____ has sharp edges for cutting or milling.
5. A/an _____ has hard, rough surface for cutting or grinding.
6. A/an _____ cuts a circular piece to remove an intact core of material.