Mechanical devices · notes sheet

Name: _____ Date: _____ AQA 3.1.5

1. Types of movement

Movement	Description	Example	Sketch
Linear			
Rotary			
Reciprocating			
Oscillating			

Test: a pendulum: which movement?	
I predict:	**What happened and why:**

2. Levers

Class	Where are F, L and E?	Examples	Sketch
1st class			
2nd class			
3rd class			

Mechanical advantage (MA) = _____ ÷ _____

Test: a nutcracker: which class?	
I predict:	**What happened and why:**

3. Linkages

Linkage	What it does	Example
Reverse motion		
Parallel motion		
Bell crank		
Crank and slider		

Test: a bell crank: pull down on one arm.	
I predict:	**What happened and why:**

4. Cams and followers

Cam	Follower movement
Circular (eccentric)	
Pear	
Snail (drop)	

Three types of follower: _____, _____, _____

Test: which cam gives a sudden drop?	
I predict:	**What happened and why:**

5. Gears

Gear ratio = _____ ÷ _____ Output speed = _____ ÷ _____

Meshing gears turn in _____ directions. An _____ gear keeps the same direction.

System	What it does
Compound gear train	
Rack and pinion	
Worm and wormwheel	
Bevel gears	

Test: 10-tooth driver, 30-tooth driven.	
I predict:	**What happened and why:**

6. Pulleys and belts

Pulley ratio = _____ ÷ _____. Both pulleys turn the _____ way. A belt can _____ if overloaded.

Test: 50 mm pulley drives 200 mm pulley.	
I predict:	**What happened and why:**

7. Quick fire

Situation	Answer
A swing	
Tweezers	
Load 600 N, effort 200 N: MA	
Driver 12 teeth, driven 36: ratio	
Motor 900 rpm, ratio 3:1: output	
Car steering wheel to wheels	

Exam question (2 marks)

A motor turns at 2400 rpm. It drives a 15-tooth gear meshing with a 60-tooth gear. Calculate the gear ratio and the output speed. *Tip: make a point, then link it with **so…***