QUESTION	ANSWER

Quiz Cards: Rates of reaction

How to use the quiz cards to learn the key facts

1) Take 6 quiz cards at a time and read through them

2) Cover up the answer side of the page.

Question	Answer

3) Take the first quiz card and ask yourself the question. Either write the answer down or say it out loud.

4) Check your answer using the answer side of the card.

5) Do this question again until you get it right.

6) Repeat the process for the second question.

7) Before going onto the third question repeat question one and two.

8) When you have gone through all of the questions try and do them in a random order to really test your knowledge.

ONCE YOU HAVE LEARNT THEM ALL ….

9) Complete some exam questions to apply your knowledge.

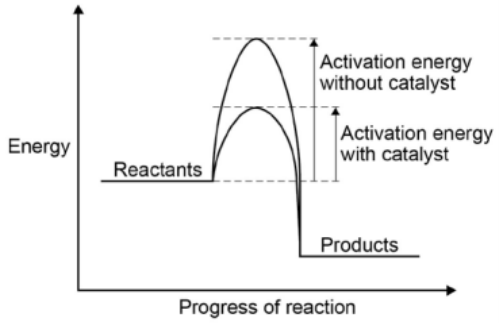
10) Check your answer with the mark scheme and correct any errors in green pen.

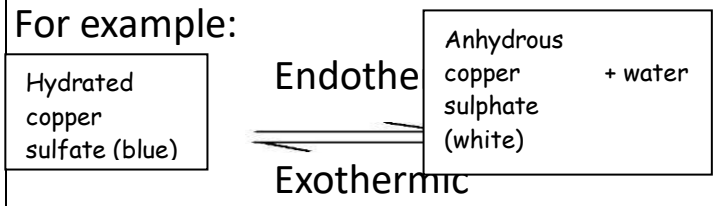
11) Repeat steps 9-10 until you get the answers correct all of the time.

QUESTION	ANSWER
What does “rate of reaction” mean?	• How fast the reactants are being used up. • How fast the products are being made.
How can we measure the rate of reaction?	• Loss of mass • Volume of gas produced • Time taken for colour change.
How can we calculate the rate of reaction?	Rate of reaction = amount of reactant used ÷ time Rate of reaction = amount of product formed ÷ time
What is the unit of rate of reaction?	g/s or cm3 /s or mol/s
What must happen for a chemical reaction to take place?	Particles must collide with enough energy.

QUESTION	ANSWER
What is the name given to the minimum amount of energy required for a chemical reaction?	The activation energy
How does temperature affect the rate of reaction?	The higher the temperature, the faster the reaction.
Why does a higher temperature speed up chemical reactions?	• Particles have more energy, • Particles move around quicker, • Particles collide more frequently more energy • There are more successful collisions
How does surface area (powder v a solid lump) affect the rate of reaction?	The bigger the surface area, the faster the rate of reaction.
Why does a larger surface area speed up chemical reactions?	• There are more particles available, • There are more frequent collisions, • There are more successful collisions
How does pressure affect the rate of reaction?	The higher the pressure, the faster the rate of reaction.

QUESTION	ANSWER
Why does a larger pressure speed up chemical reactions?	• Particles are closer together, • There are more frequent collisions, • There are more successful collisions
What is concentration?	How many particles there are in a given volume.
How does concentration affect the rate of reaction?	The higher the concentration, the faster the rate of reaction.
Why does a higher concentration speed up chemical reactions?	• Particles are closer together, • There are more frequent collisions, • There are more successful collisions
What is a catalyst?	A substance that speeds up the rate of reaction but is NOT used up in the reaction.
How does a catalyst affect the rate of reaction?	It increases the rate of reaction.

QUESTION	ANSWER
Why does a catalyst speed up chemical reactions?	It lowers the activation energy needed for a successful collision. 
Where are catalysts used?	In car exhausts, enzymes in bread making and many more industrial processes.
Why are catalysts used?	reduce <u>costs</u>
How can you find the rate of reaction from a graph?	Find the gradient of the line (or gradient to of the tangent if it is a curve).
What is a reversible reaction?	The products of the reaction can react to produce the original reactants. A + B $\rightleftharpoons$ C + D

QUESTION	ANSWER
What temperature changes happen in reversible reactions?	One direction is exothermic and the other is endothermic. The <u>same amount</u> of energy is transferred in each case. For example: 
When is equilibrium reached?	Equilibrium is reached when the forward and reverse reactions occur at exactly the same rate.
What is Le Chatelier's Principle?	If a system is at equilibrium and a change is made to any of the conditions, then the system responds to counteract the change.
What is Le Chatelier's Principle for concentration?	If the concentration of a reactant is increased, more products will be formed until equilibrium is reached again. If the concentration of a product is decreased, more reactants will react until equilibrium is reached again.
What is Le Chatelier's Principle for Temperature?	If the temperature of a system at equilibrium is increased: • the relative amount of products at equilibrium increases for an endothermic reaction • the relative amount of products at equilibrium decreases for an exothermic reaction.

QUESTION	ANSWER
	If the temperature of a system at equilibrium is decreased: • the relative amount of products at equilibrium decreases for an endothermic reaction • the relative amount of products at equilibrium increases for an exothermic reaction..
What is Le Chatelier's principle for pressure?	an increase in pressure causes the equilibrium position to shift towards the side with the smaller number of molecules as shown by the symbol equation for that reaction a decrease in pressure causes the equilibrium position to shift towards the side with the larger number of molecules as shown by the symbol equation for that reaction.