

PHYSICAL EDUCATION DEPARTMENT
AS PHYSICAL EDUCATION
SPEC: 2580
www.aqa.org.uk

OBJECTIVES	ACTIVITIES	ASSESSMENT STRATEGIES	RESOURCES
<p>AS Requirements (1st Lesson)</p> <ul style="list-style-type: none"> Outline requirements of the course and expectations regarding attitude and work. <p style="text-align: center;"><u>Applied Anatomy & Physiology Practical and Theory</u></p> <ul style="list-style-type: none"> Health Exercise and Fitness – (Practical)(3 weeks) <p>Explore health and fitness and know the differences between the two. Discuss and evaluate all components of health related fitness (HRF) and skill related fitness (SRF). Be able to put each component into the correct category.</p>	<p>Go through course outline and timetable. Hand out reading list and sources of information.</p> <p>I'm healthy, but am I fit? Discussion on differences and impact on health. Complete the following tests: Illinois agility run, stork stand, wall toss, ruler drop, vertical jump, 30m sprint. Bleep test, T-test, abdominal curl test, skin fold callipers, sit and reach, Chester step test.</p>	<p>Does every one have a text book and resource list?</p> <p>Ensure all pupils have all resources they need and understand the context of the syllabus.</p> <p>Fill in completed test scores sheet on components of fitness.</p> <p>Are pupils able to list components under the correct heading?</p> <p>Past papers questions – (specimen paper June 2009, 2c)</p>	<p>AS PE for AQA text book.</p> <p>Resource list, including websites.</p> <p>Fitness testing equipment.</p> <p>Test scores sheet.</p> <p>AS for AQA PE text book</p> <p>Past paper – June 2009.</p> <p>Pupils need practical kit for safety.</p>

**PHYSICAL EDUCATION DEPARTMENT
AS PHYSICAL EDUCATION
SPEC: 2580
www.aqa.org.uk**

<p>● Physiological differences between males and females. (1 week) Discuss reasons for physiological and sociological differences.</p> <p>● Nutrition and Diet – (3weeks) Introduce the 7 food classes and where they can be sourced. Outline the impact of diet on performance, and use of nutritional data for athletes. Discuss obesity and the limitations and impact it may have on society. Observe video of obesity.</p>	<ul style="list-style-type: none"> ● Analyse test results comparison between males/females/age/activity levels. ● Draw spider diagram to show differences(age, sex, body composition, lifestyle, genetics, training). ● 7 sources – fats, carbohydrates, fibre, protein, minerals, vitamins, water. ● Use food packaging to outline the nutritional contents of food. ● Write a food diary for one day and discuss your diet. ● Pupils to research varying diets of athletes and non athletes and write a comparison on them. ● Show pupils pictures of various body shapes, discuss obesity and the impact it is having on society. What can we do to reduce obesity? ● Observe video of half tonne man and discuss the impact it has had on the individuals life. ● Calculate BMI, and discuss implications. (muscle weighs more than fat). 	<p>All pupils receive completed spider diagram.</p> <p>All contribute to class discussion (teacher to help the less able).</p> <p>Can all pupils list the 7 food sources?</p> <p>Is a diary completed for each student?</p> <p>Can students identify a balanced diet and the nutritional demands of an athlete?</p>	<p>Paper/pens</p> <p>(Visit to Sports Science Laboratory at St.Lukes, to complete more advanced tests)</p> <p>Food packaging</p> <p>Obesity images</p> <p>Video of half tonne man.</p> <p>Bioelectric Impedance Machine</p> <p>Skin Fold Calipers</p> <p>AS for AQA PE text book</p>
---	---	---	--

**PHYSICAL EDUCATION DEPARTMENT
AS PHYSICAL EDUCATION
SPEC: 2580**

www.aqa.org.uk

<p>● Principles of Training - (Practical) (4 weeks)</p> <p>Explore SPORT and FITT. Know the concepts behind each principle and how to apply them.</p> <p>Be able to design a short training programme and apply the principles to it.</p> <p>Conduct and lead a safe circuit training session applying the FITT principle.</p> <p>Be able to outline safety procedures for individual training sessions.</p>	<ul style="list-style-type: none"> ● SPECIFICITY – be specific to your activity/component of fitness. ● PROGRESSION – gradually increase your workload to allow for adaptations. ● OVERLOAD – no pain, no gain. The body needs to be pushed to ensure that adaptations occur. ● REVERSIBILITY – use it or lose it! If you stop working for injury/holiday your body will start to lose condition. ● TEDIUM – Training must be engaging to ensure that you keep going with the programme. ● Pupils to experience practical examples of each principle. ● Give pupils a copy of principles of training handout. ● In the fitness suite – design a training session to incorporate all principles, conduct the sessions for 3 weeks to ensure that all principles are developed. ● FITT – frequency, intensity, time, type. Recap from GCSE, circuit training with dice. 2 pupils roll a dice to decide the frequency and time that each station is done for. 1-6 = number of minutes/1-6 = number of laps of the circuit. 	<p>Are pupils able to state the SPORT and FITT concepts?</p> <p>3 week exercise programme to be completed and kept for each candidate, clearly outlining the principles.</p> <p>Ask pupils to lead the circuit session, Q and A on activities being done, which CoF are being worked, how is FITT being applied.</p> <p>Complete past paper Qu's from Section B of paper.</p> <p>Pupils to fill in a risk assessment sheet for all types of training. Can they safely outline the safety procedures that need to take place.</p> <p>Q and A on the safety procedures.</p>	<p>Circuit cards</p> <p>Principles of Training table</p> <p>Dice</p> <p>AS for AQA PE text book</p> <p>Past Paper – specimen material.</p> <p>Risk assessment sheet</p>
--	--	---	---

**PHYSICAL EDUCATION DEPARTMENT
AS PHYSICAL EDUCATION
SPEC: 2580
www.aqa.org.uk**

● **Analysis of Movement
(3 weeks)**

Explore specific sporting actions and the process that helps them occur.

Highlight articulating bones at the knee, hip, shoulder and elbow.

Analyse muscular contraction, isometric and isotonic.

Introduce agonists and antagonists and the joint actions they produce.

Recap joints – types, movements, locations.

● **Levers/Biomechanics
(3 weeks)**

Introduce levers of the body and examples of them. Highlight the fulcrum, load and pivot.

The 3 classes of levers are identified and labelled. Resistance

- **Elbow and shoulder action in;** push ups, over arm throw, forehand racket strokes.
- **Hip, knee and ankle action in;** running, kicking, jumping, squats.
- Pupils to perform all sporting actions, fill in table to highlight articulating bones and muscles involved.
- Fill in muscles and skeleton handout, labelling the appropriate parts.
- In the fitness suite pupils to perform isometric and isotonic muscular contractions.- discuss the difference between the two. Which sporting actions might use them?
- On the weight machines, pupils to analyse agonist (muscle responsible for movement) and antagonist (muscle controlling the movement).

- What is a lever, discuss the varying types of levers we use in sporting situations.
- Give groups various levers to use to move varying balls. Which ones work the best? Longer the lever = more pressure can be applied. Shorter lever = heavier object can be lifted.
- Analyse sporting actions on the computer, highlight lever points on the interactive whiteboard.
- Fulcrum = joint. Load = weight. Effort = insertion of the muscle.
- Resistance arm = load – fulcrum.
- Force arm = effort – fulcrum.

Are pupils able to label all muscles and bones?

Past paper questions, filling in table of movement analysis.

Pupils to fill in table of movement analysis correctly.

Can all pupils name isometric and isotonic contractions?

Can all label agonists and antagonists for each action?

Pupils to recite 1,2,3 think F, L, E – Q and A on what comes in the middle.

Pupils to give examples of each type of lever, stating the fulcrum in each.

Call out types of lever, pupils to state an example in the body.

Skeleton and muscles handout.

Table of sporting actions.

Weight machine tables for antagonistic pairs.

AS for AQA PE text book

AS for AQA PE text book

Tennis racket, lacrosse stick, rounders bat, softball bat, badminton racket.

Indoor football, netball, rounders ball, tennis ball, shot putt.

**PHYSICAL EDUCATION DEPARTMENT
AS PHYSICAL EDUCATION
SPEC: 2580**

www.aqa.org.uk

and force arm and the mechanical advantages and disadvantages of each.

- Pupils to explore the difference between kicking a ball with their toes and their laces – how far does the ball go? Discuss findings.
- **1,2,3 think F, L, E**
- **1st order** – javelin throw, (shoulder, fulcrum)
- **2nd order** – take off (ball of foot, fulcrum)
- **3rd order** – kicking (knee, fulcrum)
- Pupils to draw each lever, and write down each sporting situation they relate to. Name another example.

- Pupils to label picture of the heart – left and right atrium/ventricle – aorta – pulmonary veins – pulmonary arteries – vena cava – atrioventricular valves – septum – semi lunar valves.

- Using a balloon show how the heart has a double pump – draw chambers on the heart and squeeze.
- Use interactive whiteboard to show pumping action.
- Introduce systole and diastole – Atrial systole = contraction. Diastole = relaxation.
- Systemic and pulmonary circulation – draw diagram to show the differences.
- Pupils to complete the cardiac cycle colouring deoxygenated blood blue and oxygenated red. Create a map of the cardiac cycle for GCSE pupils to use.

● **Cardiac Function (3 weeks)**

Areas of the heart, valves, vessels.
What is the cardiac cycle? How does atrial/ventricular diastole/systole work together?

Conduction system of the heart.
Introduce how the pace maker emits action potentials across the heart.

What does the heart do?

Past paper questions – Jan 2006.

Do pupils know the difference between the origin and insertion of a muscle?

All pupils to have completed, labelled picture of the heart.

Q and A what is oxygenated & deoxygenated blood? What is pulmonary/systemic circulation? What is systole & diastole?

Past paper questions

Does their cardiac cycle map show the pathway clearly?

Quiz on the heart.

Are pupils aware of the function of the heart and its role in the transport of blood

Levers information sheet.

Interactive whiteboard

Blue and red pens

Balloons

AS for AQA PE text book

Past papers

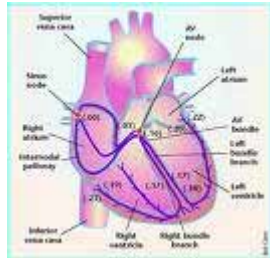
Conduction system hand out.

Interactive whiteboard

**PHYSICAL EDUCATION DEPARTMENT
AS PHYSICAL EDUCATION**

SPEC: 2580

www.aqa.org.uk



-
- Draw a flow diagram of the conduction system and relate it to systole and diastole.
- Discussion – what does the heart do and why? Transport of O₂ and CO₂, waste removal, nutrients etc.

- Vegetable bodies – pupils to create a life like respiratory system using a range of vegetables, groups of 5. Broccoli to create the alveoli, discussion on surface area.
- How big is your lung volumes? Each pupil to breathe into a balloon to see how large they can make it. Discuss differences between males and females.
 - Using a spirometer (if available) record lung volumes.
 - **Tidal volume – amount breathed in per breath**
 - **Inspiratory Reserve vol – max amount breathed in after tidal vol.**
 - **Expiratory Reserve vol – max amount breathed out after tidal vol.**
 - **Vital capacity – max amount exhaled after max inspiration.**
 - **Residual vol – amount of air always in lungs to prevent collapsing.**
 - **Total lung capacity = TV+IRV+ERV+RV**

● **Pulmonary Function (4 weeks)**

Mechanics of breathing and the muscles involved.
Lung volumes, reading a spirometer trace.
Internal and External gaseous exchange.

and nutrients.

Q and A on respiratory organs, why are they like that?

Pupils in groups to help assess each others understanding.

Past paper questions June 2006

All pupils to draw and label a spirometer trace and research the lung volumes.

Vegetables

Black card

Chalk

Spirometer (science dept.)

Balloons

AS for AQA PE text book

**PHYSICAL EDUCATION DEPARTMENT
AS PHYSICAL EDUCATION
SPEC: 2580**

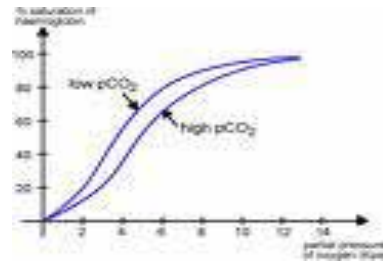
www.aqa.org.uk

● **Transport of Gases (3 weeks)**

How are gases transported within the blood and muscles – haemoglobin and myoglobin. Effects of exercise on the transport of gases, Bohr Effect/Vascular Shunt Mechanism/A-VO₂ diff. Changes in blood pressures in vessels.

Introduce the effects of exercise – increase in saturation at the alveoli.

- Outline the Bohr shift.. Hb gives up O₂ more readily at the muscles during exercise to the myoglobin.



- Explain myoglobin and its role within the muscles.
- Vascular Shunt mechanism, How is blood redistributed during exercise? Vasodilation and vasoconstriction, precapillary sphincters.
- Pupils to draw a vascular system and place precapillary sphincters showing the redistribution. Explain how this is achieved.
- Precapillary sphincters – limit blood flow to the organs and increase flow to the muscles during exercise and vice versa during rest.
- A-VO₂ difference – the amount of oxygenated blood in the veins reduces dramatically during exercise, as more is used in the muscles.
- Using cones make a vascular pathway showing a difference in diameter for arteries, veins, venules, arterioles and capillaries. Pupils to move around in pairs linking arms,

Pupils retested on their knowledge of gaseous transport.

All pupils to draw Bohr effect graph and label it.

Past paper questions on vascular shunt and bohr effect – June 2007

Q and A on difference between myoglobin and haemoglobin.

All drawing picture of vascular shunt and explaining it to peers.

Pupils gaining visual demonstration of the vessels and their diameter size.

Q and A on differences for vessel diameters and the pressures within them.

Cones

AS for AQA PE text book

Cones

Graph sheets

