

Topic 6 Forward planning

Technician

Some of the following items may need ordering in advance for activities in this topic. Safety notes are in the sheets for each activity.

Centres will need to select the activities they wish to complete, bearing in mind the time available.

Activity	Item(s)	Quantities per student or group of students	Notes
6.2	DNA gel electrophoresis kit	The kits tend to come with enough for 8 or 16 runs (i.e. enough for 8-16 pairs or small groups of students)	The NCBE, Edvotek and Bio-Rad both supply DNA gel electrophoresis kits. Some universities have kits that can be used by schools. See the teachers' notes that accompany this practical for more details.
6.3	PCR thermal cycler or three water baths		This may be combined with Activity 6.2. See the teachers' notes that accompany this practical for more details.
6.10	Access to a mixed bacterial culture of Gram- positive bacteria (e.g. <i>Bacillus subtilis</i>) and Gram-negative (e.g. <i>Escherichia coli</i>)	Each student will need to dip one cotton wool bud in the culture to smear a slide.	The cultures will probably need to be purchased separately. They are supplied as slopes on agar. Using aseptic techniques create a mixed subculture in nutrient broth. Ideally the subculture should be 1 or 2 days old when used by the class. See safety information in the Technician notes.
	Crystal violet solution	About 3 cm ³	To 100 cm ³ of absolute ethanol add 2 g of crystal violet and mix thoroughly. See safety information in the Technician notes.
	Gram's iodine solution	About 3 cm ³	First add 2 g of potassium iodide and then 1 g of iodine to 20 cm ³ of water and mix thoroughly. Then make up to 300 cm ³ with water.
	Safranin solution or carbol fuschin	A few drops	Add 2.5 g safranin to 100 cm ³ of distilled water and mix. See safety information in the Technician notes.
	Immersion oil	1 drop	This is only needed if microscopes have immersion lenses

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			lenses
	VirKon		<p>For wiping surfaces and soaking used slides. Use at 1% for disinfection.</p> <p>VirKon is available from some pet shops or through chemical suppliers</p>
6.15	<p>Agar plates seeded with bacteria or access to equipment to allow students to prepare their own plates. For this they will need:</p> <p>access one of two broth cultures of bacteria</p> <p>McCartney bottle of nutrient agar</p> <p>sterile Petri dish</p> <p>sterile pipette</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>Suitable bacteria are listed in various biological suppliers' catalogues.</p> <p>See safety information in the Technician notes.</p>
	<p>A mast ring or separate antibiotic discs.</p> <p>VirKon</p> <p>Access to an incubator set at 30°C</p>	<p>1</p>	<p>Antibiotic disks are usually cheaper but it is harder to obtain a range of antibiotics using these.</p> <p>For wiping surfaces and soaking used pipettes. Use at 1% for disinfection.</p> <p>VirKon is available from some pet shops or through chemical suppliers</p> <p>This will be needed for at least 48 hours</p>