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PBS Preview

PLTW SUMMIT

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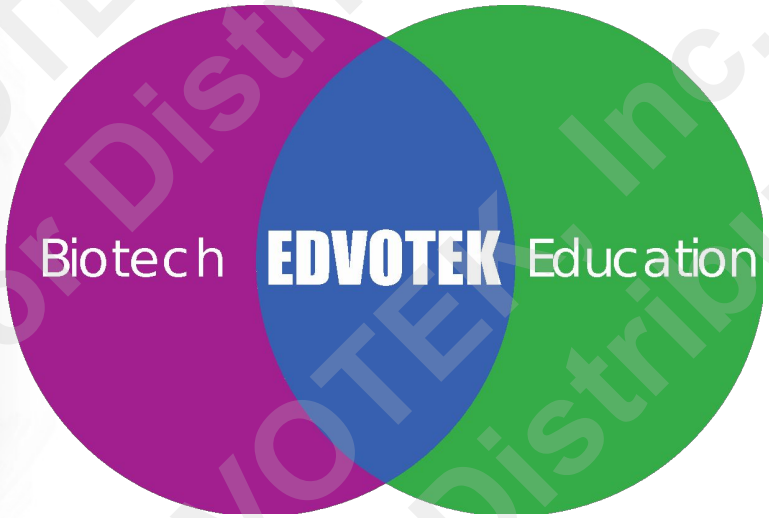
The **Biotechnology Education** Company



Celebrating 30 years of science education!

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Experiments

Reagents

Equipment

Resources

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Edvotek PLTW Experiments

Kit	Description
118-PLTW → 418	Hypercholesterolemia Kit: A Family Affair
225-PLTW → 425	DNA Detectives Kit
235-PLTW → 435	DNA Microarrays
268-PLTW → 468	Mystery Infections Kit
303 - PLTW → 403	Exploring Biotechnology with GFP
339 - PLTW → 439	Sequencing The Human Genome Kit
990-PLTW → 490	Morphology of Cancer Cells Kit
301	Construction and Cloning of a DNA Recombinant
445	Pipetting by Numbers
491 (1.1.4)	Blood Evidence
401 (4.2.3)	Under the Sea
485	Clues in the Chromosomes
430	DNA Analysis

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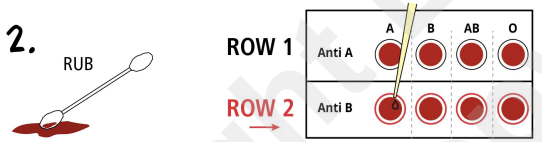
PBS Refresh

Focus on careers in biomedical science

Unit 1: Medical Investigation

Edvokit 491: Blood Evidence

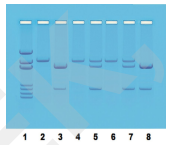


Edvokit 430: DNA Evidence

Unit 2: Clinical Care

Edvokit 485: Clues in the Chromosomes

Edvokit 418: A Family Affair



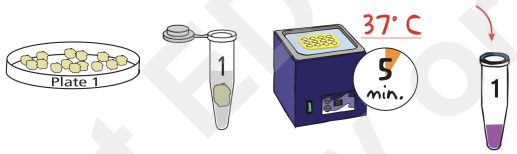
445: Pipetting by Numbers

Unit 3: Public Health

X

Unit 4: Innovation Inc

Edvokit 401: Under the Sea



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Edvotek PLTW Equipment

Kit	Description
504	M12 Complete™ Electrophoresis Apparatus
5010	TetraSource™ 300 Digital Electrophoresis PS
557	TruBlu™ Blue Light Transillumiantor
589 / 591 / 592-1	Edvotek Variable Micropipets, 0.5-10 µl, 2-20 µl, 10-100 µl, 100-1000 µl
539 / 538 / 5027	Water Bath

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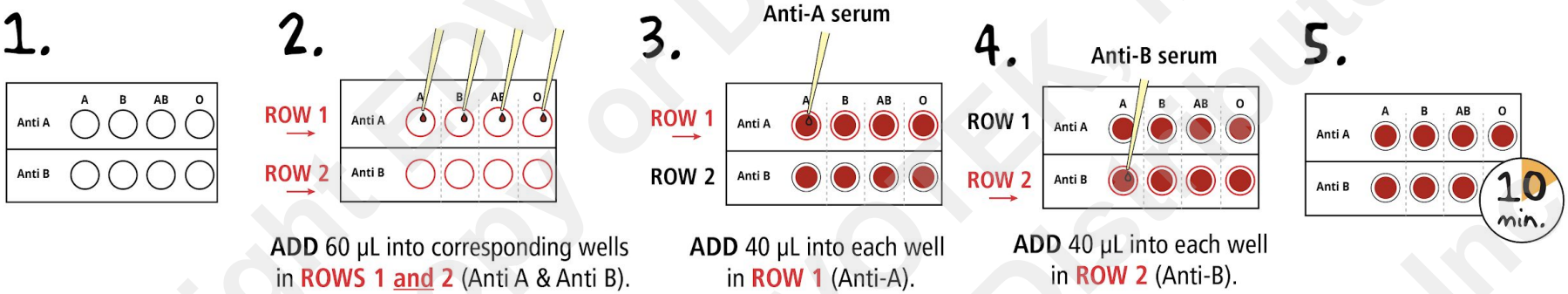
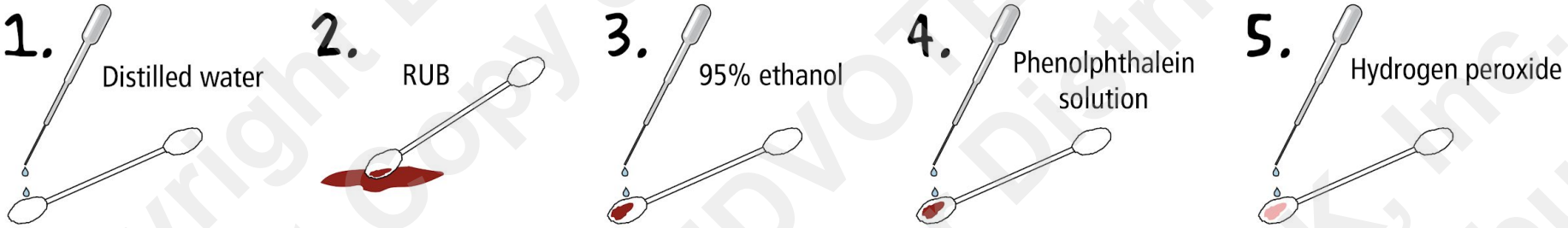
Blood Evidence Experiment 1



1. **LABEL** the 4 wells and two rows as shown.
2. **ADD** 60 uL of each blood type sample into the two corresponding wells.
3. **ADD** 40 uL of Anti-A serum into each of the wells in row # 1
4. **ADD** anti-B serum into each of the wells in row #2
5. **INCUBATE** for 5-10 minutes

Blood Evidence Experiment 2

Test the object collected from the crime scene and control samples to see if they are positive or negative for the presence of blood using the phenolphthalein test. ***Remember to use a different transfer pipet or pipette tip for each solution.***

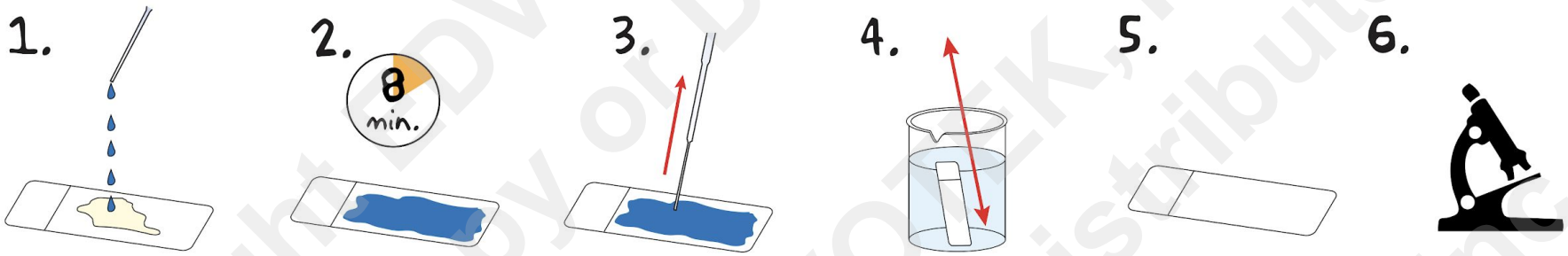


1. Lightly **MOISTEN** a cotton swab with distilled water
2. Firmly **RUB** the swab against the evidence until it absorbs some red stain
3. **ADD** two drops (40 uL) of 95% ethanol to swab
4. **ADD** two drops (40 uL) phenolphthalein to swab
5. **ADD** two drops (40 uL) hydrogen peroxide to swab
6. **NOTICE** any color change

Clues in the Chromosomes Full

Students will drop cells themselves onto the slides
Due to timing constraints, we will only do the staining portion

Clues in the Chromosomes Today



1. **ADD** the Giesma stain to the entire area of the slide containing the metaphase spreads. Try to cover the slide without letting it overflow.
2. **INCUBATE** the slide for 5-8 minutes at room temperature.
3. **ASPIRATE** the remaining stain and dispose
4. **RINSE** the slide by briefly dipping it in a water. Gently **TAP** on a paper towel to dry.
5. Air Dry.
6. **VIEW** on microscope.

Pipetting by Numbers: STEAM Pipetting Practice

Each circle will indicate:

- Volume (in µL)
- Color:
  - -R=red
  - -Y=yellow
  - -B=blue
  - -P=purple
  - -N=navy

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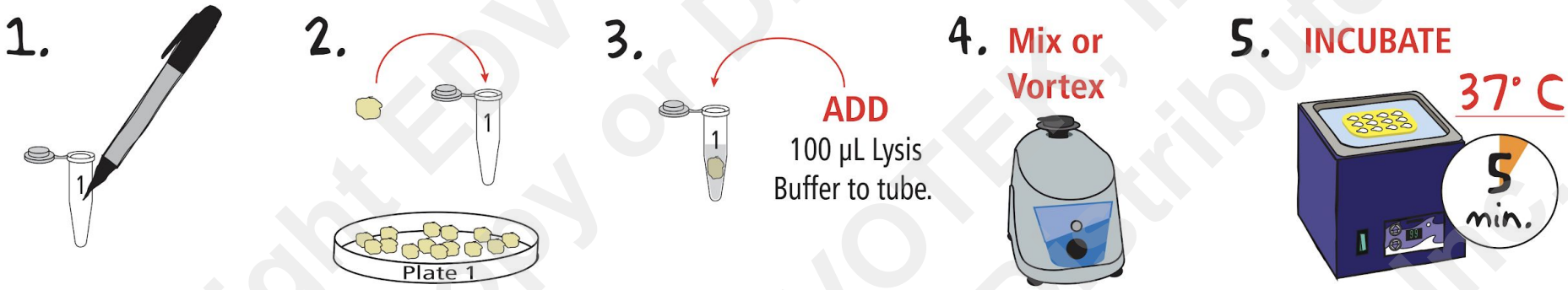
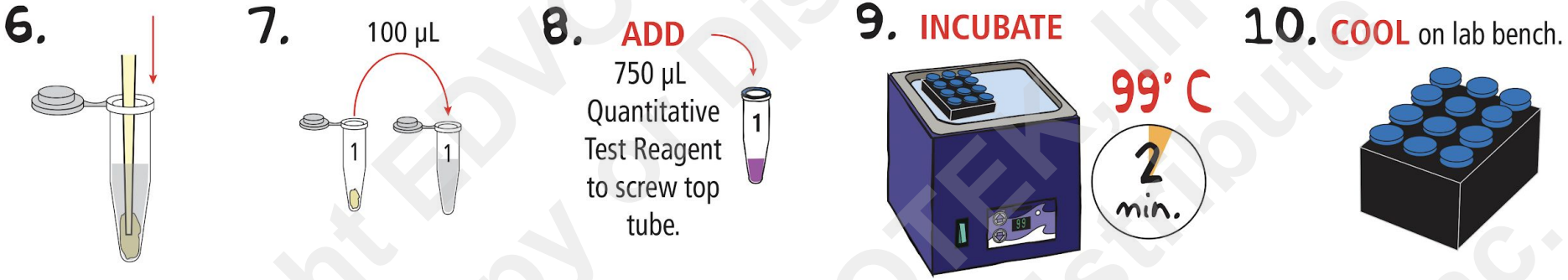
Under the Sea



1. **LABEL** a microcentrifuge tube with your choice of sponge.
2. Gently **TAKE** a sponge from your chosen petri dish and place it into a snap-top tube.
3. **ADD** 100 uL Lysis Buffer to each tube.
4. **VORTEX** or **PIPET** up and down to **MIX**.
5. **INCUBATE** the tube at 5 min at 37 deg C.

Under the Sea



6. Using a pipet tip, **PRESS DOWN** on the sponge until it is almost at the bottom of the tube.
7. **TRANSFER** 100 uL of liquid to a fresh tube labeled with your sponge number.
8. **ADD** 750 uL Quantitative Test Reagent (QTR) to each screw top tube. **INVERT** several times to **MIX**.
9. **INCUBATE** the samples at 99 deg C for 2 min.
10. Carefully **REMOVE** the samples and place them on your bench. EXAMINE for color change.

15 minutes at each station!

Questions?

Edvotek PLTW Experiments

Kit	Description
118-PLTW	Hypercholesterolemia Kit
225-PLTW	
235-PLTW	
268-PLTW	
301-PLTW	
303 - PLTW	
339 - PLTW	
990-PLTW	
116	
330	
345	
951	
953	
956	Bioremediation by Oil-eating Bacteria Kit

Mistakes ~~Hurt!~~ Happen!

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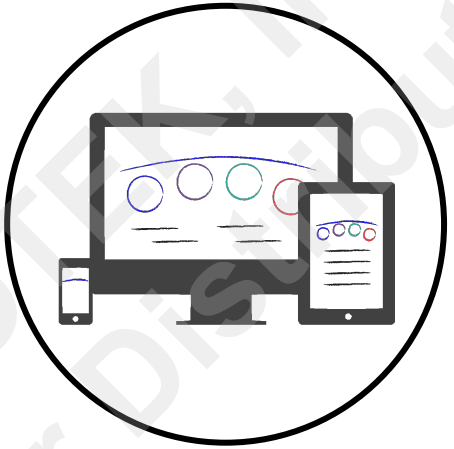

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We are ready to help!

Mistakes ~~Hurt!~~ Happen!

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Monday – Friday
8AM-5:30PM EST

We are ready to help!

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