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Human Epidermal Cells

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Introduction:

What do your skin cells look like? It is easy to remove some and look at them with a microscope.

Biological Concepts:

- Cell structure
- Epidermis

Materials:

Clear tape, 1.0 cm × 1.0 cm	Microscope slide
Soap/water	Slide cover slip
Methylene blue stain, 1% aqueous	Dissecting needle
Microscope	Forceps

Caution:

This activity requires the use of hazardous components and/or has the potential for hazardous reactions. Please review the Safety Precautions section on the following page and relevant Material Safety Data Sheets before beginning this activity.

Procedure:

1. Wash the underside of a wrist that will be sampled for epidermal cells with soap and water.
2. Stick a clean piece of clear tape on the underside of the washed wrist.
3. Gently remove the piece of tape from the wrist being careful to avoid getting fingerprints on the tape. A forceps might help to remove the tape and avoid fingerprinting the tape.
4. Place the tape, sticky-side up, on a clean microscope slide.
5. Stain the top, sticky side of the tape with 2 or 3 drops of 1% methylene blue solution.
6. Use a dissecting needle to gently place a cover slip over the sticky tape. Lower the coverslip down onto the tape and then remove the dissecting needle. This should help prevent staining your fingers. *Caution: Use methylene blue carefully. It will stain most items including skin, clothing, and table tops.*
7. Examine the slide under a microscope. Look for cells with low power first, and then switch to high power for details.

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8. Record your observations of epidermal cells by making drawings. Label your drawings with appropriate magnifications. Use your knowledge of the size of the microscopic field to estimate the size of the cells.

Discussion:

There has been concern expressed about the classic activity in which students remove cheek cells from the inside of their mouths. The procedure described in this activity eliminates the potential dangers inherent in collecting cheek cells from the mouth. The cells secured from the wrist will be easy to find. Students may have to examine numerous cells before they find a “nice” cell with nucleus, etc. Patience will yield good results. Students are likely to be amazed at how easy it is to remove cells from the surface of the skin. The simple removal technique illustrates the fact that the skin is continually shed. Microbes and other organisms are shed along with the skin thus helping in the fight against microbe invasion.

Tips:

- This activity is a perfect stimulus to provide additional information on the skin and to discuss the significance of continual shedding of the skin.
- The tape used for this activity should be as sticky as possible and it must be clear—not opaque. Clear, box-sealing tape works well.
- Methylene blue (1% aqueous) or Lugol’s iodine stain work well for staining basic cell structures.

Safety Precautions:

Methylene blue is a vital stain, it stains nearly everything, and it is difficult to remove. Prevention is the key when working with vital stains. Wear chemical splash goggles, chemical-resistant gloves, and a chemical-resistant apron.

Disposal:

Flush all materials down the drain following Flinn Suggested Disposal Method #26b. Please consult your current *Flinn Chemical & Biological Catalog/Reference Manual* for proper disposal procedures.

Materials for *Human Epidermal Cells* are available from Flinn Scientific, Inc.:

Catalog No.	Description	Price/Each
M0074	Methylene Blue Solution	Consult Your Current <i>Flinn Catalog/Reference Manual</i> .
I0036	Iodine Solution, Lugol’s	
ML1398	Microscope slides, Glass, Economy Choice	
ML1377	Cover slips, Plastic	