

**MIDDLE SCHOOL**

**Biotechnology**

**Another Cat Needs Exfoliation**

Don’t give away that the condition is cat acne! Feline Acne is a condition in which comedones (blackheads) develop on the chin of a cat. The exact cause of feline acne is not known but several factors appear to be associated with its development including stress, a suppressed immune system, poor grooming habits, and the presence of other diseases. There are some treatments for feline acne but no cure. One treatment is an oral retinoid (Isotretinoin) that may be used in severe cases, but the drug is teratogenic (causes birth defects) in cats.

\*The gestation period of a cat is approximately 3 months. Sparky is 1 month along in her pregnancy.

<http://www.peteducation.com/article.cfm?c=1+2141&aid=2517>

**Goal**: To determine the best treatment for Sparky’s feline acne, while discovering that Sparky is pregnant.

**Learning Objectives**: Students will…

* Discuss what should be done about Sparky’s feline acne
* View a PowerPoint about Feline Acne
* Determine what the best treatment for Sparky is
* Decide to test if Sparky is pregnant (she has distended belly)
* Perform pregnancy test (“urine” samples are still available)
* Discover that Sparky is indeed pregnant
* Conclude safer way to treat Feline Acne

**Materials:**

* Copies of Furry Friends Treatment Sheet (1 per group)
* Computer & LCD projector to watch Feline Acne PowerPoint
* Pregnancy Test Directions and Result form
* 1 Divided Petri dish or chemplate per group (2 wells is sufficient)
* “Urine” sample (at least 10 ml per group)
* 1 pipette per group to transfer urine
* Squirt Bottle with positive solution
* Squirt Bottle with negative solution
* 10 ml graduated cylinder
* Safety goggles

**Time Required**: 60 minute class period

**Standards Met**:

* Life science: Reproduction and heredity
* Science as inquiry: Abilities necessary to do scientific inquiry

**Procedure**:

**Part One**

* Inform the students that Furry Friends needs to know how to treat Sparky for the diseases/disorders that she has. Are we missing treatment for any symptoms?
* While the students are filling out the sheet ask them if they are certain about every disease/disorder.
* Once a student mentions Feline Acne or the dirty chin, explain that you have discovered a PowerPoint that explains the facts/causes/treatments for Feline Acne.
* Watch the PowerPoint together.
* As each slide is shown, discuss how this relates to Sparky.

Slide 3- Her chin looks dirty, she has been seen itching it.

Slide 4- She was in a stressful environment, there were plastic dishes in the shed.

Slide 5- Treatments- How do these sound?

Slide 6- Isotretinoin- None of these side effects sound good, which is the worst?

*Birth Defects*

Slide 7- Video stressing the dangers of pregnancy while taking isotretinoin

Slide 8-Ask the students what they want to do. Sparky needs to be treated.

* Take all suggestions for treatment. Hopefully a student will suggest a pregnancy test and her blood type could be a problem if she has kittens.
* Discuss why it is important to give a pregnancy test before beginning treatment.

**Part Two**

* Pass out the direction sheet for the Pregnancy Test.
* Have students mark the $50.00 charge on the medical expense form.
* Students gather the necessary materials and perform the test.
* Students fill out the Pregnancy Test Results and determine that she is pregnant.
* After clean up, discuss what treatment method should be used for Sparky’s Feline Acne.
* Students complete the Furry Friends Final Treatment Sheet.

**Teacher Prep:**

The pregnancy test is a simple color change reaction

**Sparky’s Urine- Positive Solution Negative Solution**

100ml water 100 ml of water 100 ml water

20 ml ammonia 5 ml phenolphthalein

Yellow food coloring

* Put Sparky’s urine in specimen containers (urine does have an ammonia smell).
* Pour the positive and negative solutions into squirt bottles or into beakers with pipettes.

**A starch/iodine reaction could also be used.**

Sparky’s urine- Iodine and water mixture

Positive Solution- Water with cornstarch (heated and then cooled)

Negative Solution- Water

**Assessment:**

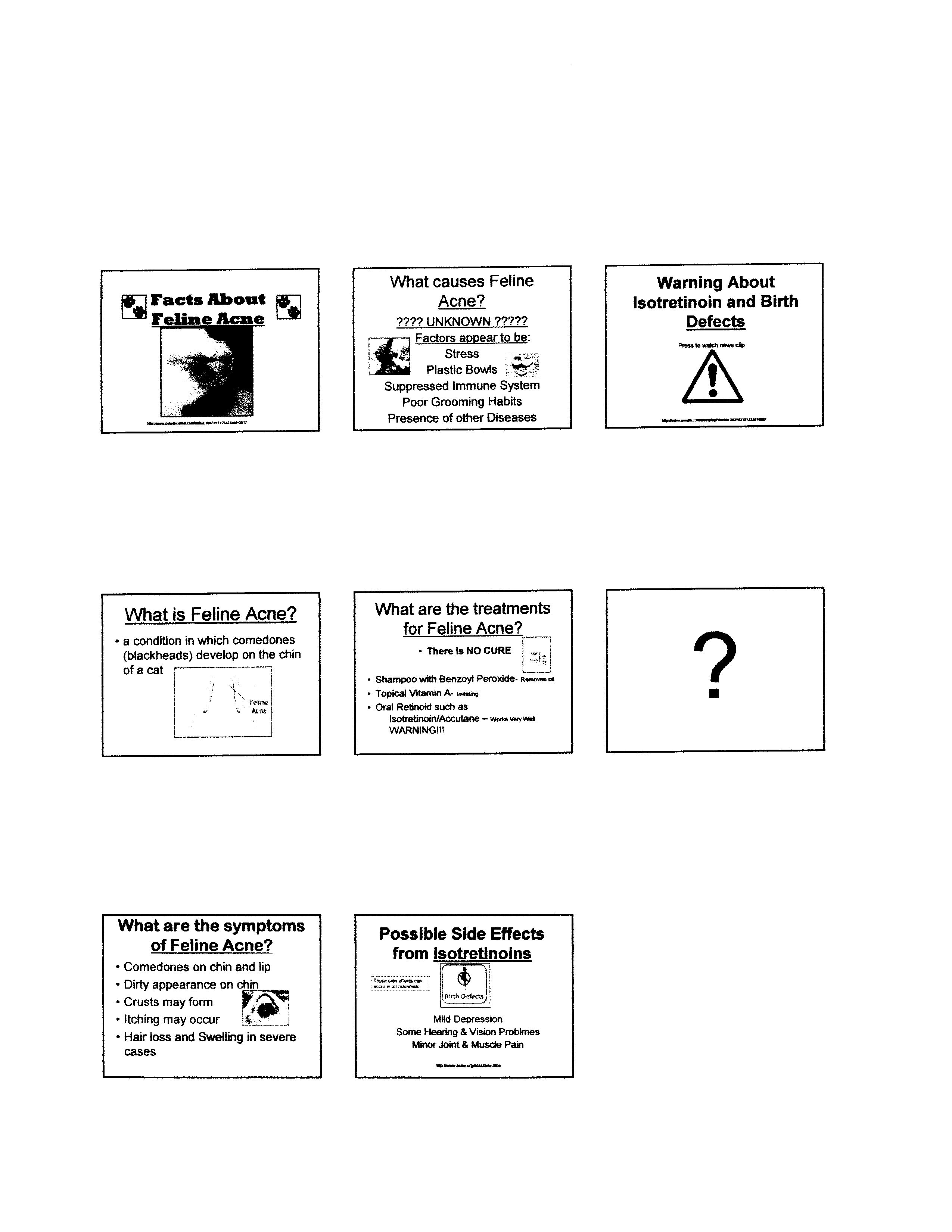
•Participation in class discussion of Feline Acne PowerPoint

•Accuracy of Pregnancy Test (positive)

•Completion of Furry Friends Final Treatment Sheet



**PowerPoint Slides:**



PowerPoint

PowerPoint

PowerPoint

PowerPoint

PowerPoint

PowerPoint

PowerPoint

PowerPoint

**Another Cat Needs Exfoliation: Pregnancy Test**

**Cost: $50.00 (add this to your medical expense sheet!)**

Directions to administer a pregnancy test

**Materials:**

* Sample of patient’s urine (approximately 10ml)
* Positive Indicator Solution
* Negative Indicator Solution
* Divided Petri dish or chemplate
* Pipette
* 10 ml graduated cylinder
* Safety goggles
* Gloves

**Procedure:**

1. Gather materials.

2. Put safety goggles on. -- +

2. Label one side of the Petri dish negative and one side positive

(or label one well negative and one well positive if using a chemplate).

3. Fill each side of the dish ½ full with the appropriate solution.

4. Using a pipette, fill the graduated cylinder with 3 ml of urine.

5. Pour the urine into one side of the Petri dish.

6. Repeat directions 4 and 5 with the other side.

7. Record observations in the data table below.

|  |  |  |
| --- | --- | --- |
|  | Negative Solution | Positive Solution |
| Initial Color |  |  |
| Color with Urine Added |  |  |

A color change indicates that the patient is pregnant.

(Circle one) **The patient IS IS NOT pregnant**