

Family Science Nights

March 10, 2011, 3:30-4:30 pm

National Science Teacher Association National Conference

Caleb Cheung

Goal

1. Expand the concept of Family Science Nights.
2. Share some of my past events.
3. Provide a framework for developing your own event.

Agenda

- Introduction
- Types of Events
- Planning
- Funding
- Promotion
- Event Management
- Follow Up
- Q&A
- Resources

Why Family Science Nights?

- Generate school wide excitement about science
- Engage students to take ownership of their learning
- Allow families to actively participate in their child's education

Types of Events

- Station-Based vs. a Presentation
- Student vs. Teacher Led
- Thematic vs. Non-Thematic

Non-Thematic Events

- Select engaging science activities from your curriculum (drops of water on a penny, lighting a light bulb, liquid density layers, cabbage juice chemistry)
- Activities could have a common topic (environment, nutrition, human body)

Thematic Events

- Invention Convention (make & take)
- Olympiad or competition based (measurement, paper bridges, egg drop, foil boats)
- Science Fair Projects (student projects become the stations)
- Mystery Investigation
 - Stage a crime scene in the back of your room
 - Pretend it is real
 - Include staff as suspects
 - Examples: kidnapping, theft, mystery illness, UFO

Event Planning

- Conduct activities in class first, then use as stations in the evening event
- Organize the event by department, grade level, or schoolwide
- Include other teachers
- Collaborate with other subjects (interdisciplinary)
 - English – creative writing, labs, stories
 - Math – solving problems with time, maps, size & scale
 - History – timeline, geography, setting, historic scientists
 - Art – crime scene documentation, suspect drawings
 - Computer – internet research, software, facial software

Funding

- Costs for the events are generally minimal
- Local business donations
 - Cash, door prizes
- Title I - Parent Involvement (10%)
 - Food and materials
- Grants – DonorsChoose.org

Promotion

- CALL FAMILIES and personally invite them
 - Less than 20% of event flyers make it home
 - “Your child will be the teacher for the night”
- Teaser campaign at school (“Theft at Frick!” “Who stole the statue?” “It’s coming, May 8”)
- School announcements
- Video commercial
- Invite everyone (staff, superintendent, school board,...)
- Press – contact the education writer at local newspaper

Event Management - General Suggestions

- NO UNSUPERVISED STUDENTS, require an adult (18+)
- Timing
 - ~6-8 pm, Tuesday or Thursdays
 - 2 weeks before report cards
 - Drop in event – come and leave any time
- Incentives
 - Food, drinks
 - Prizes, raffle?
 - Extra credit for students
- Décor - have students create decorative posters related to the event, include student work
- Event Management
 - Recruit teachers and students
 - Organizing helpers into teams (setup, welcome table, food, stations, clean up)
 - Delegate anything that can be handled by other people
 - Defer conversations about student grades
- Free yourself from all responsibilities so you can deal with emergencies, VIPs, and the press

Event Management - Site Logistics

- Parking
- Administrative support
 - Supervision at the entrance
 - Event permit for site
- Custodians
 - Setup
 - Accidents
 - Extra trash cans around food area
 - Clean up

Event Management - Welcome Table

- Greet guests
- Remind students to be the teacher for the night
- Have a one page handout or a passport card (one per family) that allows families to track their progress through the stations
- Provide pens or pencils
- Move people through quickly - multiple sign in sheets, clipboards
- Optional: name tags, food tickets

Event Management - Stations

- One large room vs. a station in each classroom
- Plan the flow of the stations with sufficient spacing for people
- Consider non-sequential stations
- Start with a looped orientation video (~5 mins)
- Put all the directions and notes for each station on one giant poster ahead of time
- Keep activities simple and directions short
- Number each station
- Label everything
- Tape down or leash loose items if possible
- Pay attention to time consuming stations (long or messy activities, complex equipment)
 - Constrain the activity (tape down microscopes)
 - Provide clean up or duplicate sets of supplies (towels, extra “evidence” bags)
 - Use student helpers to manage and check the materials
- Use a stamp or a simple question on the worksheet to indicate completion of stations
- Use the stamped card or completed worksheet as a ticket to get food
- Include activities for young children (coloring)

Follow Up

- In class
 - Court case or debate
 - Fictional story writing assignment
 - Newspaper article
- Thank you notes/letters/poster - maintain relationships with partner organizations, staff, donors, etc.
- Solution or no solution to the mystery? You decide.

Resources

- GEMS Guides
 - *Mystery Festival*, by Kevin Beals & Carolyn Willard (grades 2-8)
 - *Fingerprinting* by Jeremy John Ahouse & Jacqueline Barber (grades 4-8)
 - *Crime Lab Chemistry: Solving Mysteries with Chromatography* by Jacqueline Barber & Kevin Beals (grades 4-8)
- *Crime Scene Investigations: Real-Life Science Labs For Grades 6-12* by Pam Walker & Elaine Wood
- *Crime Scene Investigations: Real-Life Science Activities for the Elementary Grades* by Pam Walker & Elaine Wood

Contact Information

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The Frick Tribune

Special Science Bulletin

Magic Birds Stolen! Teacher Suspected of Crime

Mr. Chum's pet birds were stolen this week from his classroom at Frick Middle School. Herbert and Angel, two ring necked doves used by Mr. Chum in his famous magic act, were found missing by a teacher after school. The kidnapper left a ransom note demanding \$10,000. It says that if Mr. Chum doesn't follow the instructions, the birds will be killed.



Mr. Chum has many pets at school and at home including fish, tarantulas, and insects. Most recently, he started keeping birds. Mr. Chum takes his pets very seriously. In fact, he took out a \$100,000 pet life insurance policy on Hebert and Angel just two weeks ago.

The authorities have identified four teacher suspects: Ms. Zoo, Mr. Clue, Ms. Grin, and Mr. Cagey. All were present at the time of the kidnapping and have different motives for committing the crime.

No conclusion has been reached. However, the initial forensic investigation revealed clues including unidentified hairs, fibers, and fingerprints. Investigators are returning to the crime scene to gather more evidence.

Please direct questions to Mr. Cheung at (510) 879-2030 or e-mail: caleb@ousd.k12.ca.us For more information about this and past events, visit <http://tlc.ousd.k12.ca.us/~ccheung>

Family Science Night Investigation Launched Lead Detectives Needed

Frick Middle School is looking for lead detectives to solve the mystery of the stolen birds. Students, families, and community members of all ages are all invited. **Students must be accompanied by an adult.** Previous experience is not necessary. Family science nights are opportunities for everyone to learn science in a fun atmosphere.

Job Description:

- Analyze soil, stains, tools, fingerprint, and footprint samples. Search the crime scene and interview witnesses.
- Use microscopes to compare blood, fabric, and hair samples. Biology background a plus.
- Examine the evidence, perform 15 different experiments and activities, and draw your own conclusions. Must have an open mind.
- Oakland Police will provide community safety information and fingerprinting services for children.
- **Free food** for participants.

To apply, fill out the application on the right. Then report to Frick Middle School, 2845 64th Avenue, Thursday, November 3, 2005 from 6:00 - 8:00 p.m.

Investigator Application

Please fill out the boxes and check all that apply.

Student Name:

Parent Name:

Phone Number:

- Yes, I will attend
- No, I will not be coming
- I will bring a drink to share
- I can help clean up afterwards

Cut on the dotted line and return by 10/31/05 to Mr. Cheung in Room 104

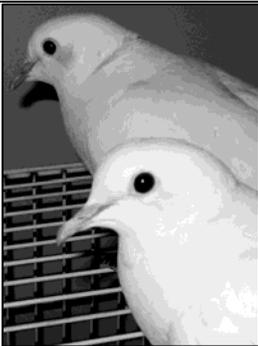
Kidnapped! - A Forensic Family Science Night

Presented by the 7th Grade Class at Frick Middle School

"Mr. Chum, If you ever want to see your birds alive again, bring \$10,000 to Concordia park next to the school on Friday November 4, 2005. Put the money in a brown paper bag and put it in the trash can by the basketball courts. Come alone! Do not contact the police or your precious Herbert and Angel are dead birds!!!"



Herbert and Angel



Herbert and Angel are two ring necked doves that live in Mr. Chum's classroom. These favorite pets are used by Mr. Chum in his famous magic act.

Well known for his animal collection, Mr. Chum takes his pets very seriously. In fact, he took out a \$100,000 pet life insurance policy on the birds two weeks ago. So far, four teacher

suspects have been identified in the kidnapping.

What We Know:

Height: 6"

Shoe Size: 1

Hair: white and fuzzy

Eye Color: red

Clothing: white coat

Notes: like to eat bread, make hooting noises, able to disappear and reappear during Mr. Chum's magic act.

The Victims

Ms. Zoo

Suspect's Statement:

"Hi. My name is Ms. Zoo and I'm a science teacher. I can't say that I care for Mr. Chum too much. He never lends me science equipment when I need it. Not that I'm upset about it..."

On the day of the kidnapping, almost all the other teachers and administrators left the school by



3:30. I was in my room late with my pet cat, Katie, trying to set up an experiment for the next day when Mr. Clue yelled for help. I ran straight to Mr. Chum's classroom to find the birds missing along with a ransom note. Even though I believe animals should never be locked up, I still hope you catch who ever took Herbert and Angel!"

What We Know:

Height: 5' 8"

Shoe Size: 10

Hair: Straight, dark brown hair

Eye Color: brown

Clothing: green cotton shirt and black pants

Notes: has a cut on her right arm, owns pet cat, always uses her favorite black pen (Pilot Fineliner), has pierced ears, animal rights activist, loves In and Out burgers

Mr. Clue

Suspect's Statement:

"My name is Mr. Clue and I teach English. I was here late after school trying to catch up on some reading when I accidentally fell asleep. When I woke up, it was 4:30 and I quickly packed up to go home.



On my way out, I discovered that Mr. Chum's classroom door was open. When I looked inside, the bird cage was knocked over and the birds were gone. I yelled out for help and Ms. Zoo came over right away. It's too bad they took Mr. Chum's favorite pet, but it's not like he'll miss it. He has too many animals in that huge classroom. It's not fair that some teachers like me have to put up with small classrooms. He deserves to have those birds stolen."

What We Know:

Height: 6' 2"

Shoe Size: 12

Hair: straight brown hair

Eye Color: green

Clothing: blue shirt and brown pants

Notes: likes to eat Burger King hamburgers, use green ink pens, listen to country music, runner

Ms. Grin**Suspect #2****Suspect's Statement:**

"My name is Ms. Grin and I teach 7th grade at Frick. Mr. Criddle asked me to stay late after school to help organize the books in the library on the day those birds disappeared. I have no idea what happened to them. I think I heard a woman's voice downstairs after school around 4:30. You know, I'm glad those

birds are gone. They make way too much noise and give me allergies. It's a pain for me when we have meetings in Mr. Chum's room after school.

Listen, my mom is really sick and I need hurry to my second job. Those doctor's bills are expensive! Good luck catching the thief!"

What We Know:

Height: 5' 0"

Shoe Size: 8

Hair: brown wavy hair

Eye Color: brown

Clothing: green silk blouse and blue pants

Notes: uses black pens (Pilot Precise V5), has pierced ears, owns a dog, wears glasses, loves ice cream, listens to rock music

Mr. Cagey**Suspect #4****Suspect's Statement:**

"Hi! My name is Mr. Cagey and I am a social studies teacher at Frick. I was busy grading papers in my room that day and didn't see or hear anything. I don't know why anyone would want to take those stupid birds.

Yes, I like to play pranks on people. I confess that I put a fake rat in the teacher's lunch

room the other day, but it was just a joke. Taking a live animal is different. You would need to have a cage, food, water, a place to keep it safe and warm, uh... not that I would know anything about that... I mean, I've never even been in Mr. Chum's room!"

What We Know:

Height: 5' 10"

Shoe Size: 10

Hair: curvy brown hair

Eye Color: hazel

Clothing: green polyester jacket and brown pants

Notes: uses only red pens, worked as a locksmith before teaching, wears glasses, likes reggae music, eats a lot of BBQ potato chips

Kidnapped!

Detective Name(s): _____

Family Science Night at Frick Middle School

Welcome to Family Science Night! Tonight you are the chief investigator trying to solve the mystery of the kidnapped birds. Go to each station and follow the directions.
You do not have to go in order. Good luck and have fun!

1. Background & Suspect Interviews

Write down anything you think is important from the story and the statements of each of the suspects. Pay special attention to possible motives (reasons for committing the crime).

<u>The Suspects</u>	<u>What We Know</u>	<u>Notes</u>
Ms. Zoo 	Height: 5' 8" Shoe Size: 10 Hair: Straight, dark brown hair Eye Color: brown Clothing: green cotton shirt and black pants Notes: cut on her right arm, owns pet cat, always uses a black pen (Pilot Fineliner), has pierced ears, animal rights activist, loves In and Out burgers	
Mr. Clue 	Height: 6' 2" Shoe Size: 12 Hair: straight brown hair Eye Color: green Clothing: blue shirt and brown pants Notes: likes to eat Burger King hamburgers, use green ink pens, listen to country music, runner	
Ms. Grin 	Height: 5' 0" Shoe Size: 8 Hair: brown wavy hair Eye Color: brown Clothing: green silk blouse and blue pants Notes: uses black pens (Pilot Precise V5), has pierced ears, owns a dog, wears glasses, loves ice cream, listens to rock music	
Mr. Cagey 	Height: 5' 10" Shoe Size: 10 Hair: curvy brown hair Eye Color: hazel Clothing: green polyester jacket and brown pants Notes: uses only red pens, worked as a locksmith before teaching, wears glasses, likes reggae music, eats a lot of BBQ potato chips	

2. Crime Scene

Write down any clues you see.

(more on the other side)

3. Footprints

Whose shoes left prints? _____

4. Fingerprints

Whose prints are on the doorknob?

Whose prints are found on the cup?

5. Hair Analysis

What kinds of hairs are at the scene and what color are they? _____

6. DNA

Who matches the DNA from the earring?

Whose DNA matches the DNA from the hair?

7. Fabric Analysis

Whose shirt matches with the thread?

8. Scents

Whose scent is on the towel?

Whose scent is on the glove?

9. Stain Analysis

What are the red stains?

10. Ink Chromatography

Whose pen matches with the one used to write the ransom note?

11. Handwriting

Whose handwriting matches with the writing on the ransom note?

12. Soil Analysis

Where did the soil at the crime scene come from?

13. Suspect Sketch

Try using the computer program to reconstruct a face. Whose face did the witness describe?

14. Lost Bird Poster

If you want, you can draw or color a lost bird poster to take home.

15. Model Neighborhood Program

What resources does this program provide?

16. Oakland Police

What are some things you can do to keep your belongings safe? _____

17. Conclusion

Who do you think stole the birds and why?

Please vote with a post-it note.

Thank you for coming to Family Science Night. We hope you had a great time! Be on the look out for our Medical Mystery Family Science Night later this year in the Spring!

Brainstorming Ideas for “Kidnapped”

Character

Who are the main characters that will be involved in your story?

Setting

Where will your story take place?

When will your story take place?

Conflict

What will be the main conflict (problem) of your story?

Will there be any other conflicts in the story?

Resolution

How do you want the conflict to turn out (how do you want the story to end up)?

Point of View

From what point of view do you want to narrate (tell) the story?

What are the advantages and disadvantages of narrating from this point of view?

Organizing Ideas for “Kidnapped”

1. By the time the reader has finished the beginning of your story he/she should be able to:
 - a. Give some details about where and when your story is taking place (the setting)
 - b. Basically explain the main problem (conflict) of the story
 - c. Basically describe some of the story’s main characters

2. By the time the reader has finished the middle of your story he/she should be able to:
 - a. Describe several events that have made the story’s problem more complicated
 - b. Describe even more about the characters

3. By the time the reader has finished the end of your story he/she should be able to:
 - a. Explain how the story’s problem(s) have turned out
 - b. Explain what has happened to the story’s main characters

Use the graphic organizer below to organize the main events in your story. Don’t feel like you have to fill all of the rows. Do whatever works for your story.

Part of Story	Brief Description of Event
Beginning	
Middle	
End	

Rubric for "Kidnapped"

CATEGORY	A	B	C	F
1. Organization of Plot	The story's plot closely follows the attached outline. It is easy to see how all of the events are connected/related to each other.	The story's plot mostly follows the attached outline. Most of the events seem to be related/connected to each other.	The story's plot doesn't really follow the attached outline and is a little hard to follow.	It is very hard to follow the story and understand how the events are related to each other.
2. Characterization	The main characters are named and clearly described. The author uses a variety of ways to "show, not tell" about the characters.	The main characters are named and described. The author doesn't use various ways to "show, not tell" about the characters.	The main characters are named. The reader knows very little about the characters.	It is hard to tell who the main characters are.
3. Dialogue	There is an appropriate amount of meaningful dialogue. The dialogue brings the characters to life, and it is always clear which character is speaking.	Dialogue is included, but it doesn't play a meaningful and important part in the story. It is always clear which character is speaking.	There is some dialogue, but it doesn't play a meaningful and important part in the story and it isn't always clear which character is speaking.	There is no dialogue in the story.
4. Creativity, Details, & Description	The story contains many creative details and descriptions that play an important part of the story. It is clear the author used his/her imagination.	The story contains a few creative details and descriptions that play an important part of the story. It seems like the author used his/her imagination.	The story contains a few creative details and descriptions but they don't seem to play an important part of the story.	There is very little creative description or detail.
5. Neatness	The final draft of the story is readable, clean, neat and attractive. It is free of erasures and crossed-out words. It looks like the author took great pride in it.	The final draft of the story is readable, neat and attractive. It may have one or two erasures, but they are not distracting. It looks like the author took some pride in it.	The final draft of the story is readable and some of the pages are attractive. It looks like parts of it might have been done in a hurry.	The final draft is not neat or attractive. It looks like the student just wanted to get it done and didn't care what it looked like.
6. Spelling	There are absolutely no spelling errors in the final draft.	There is one spelling error in the final draft.	There are 2-3 spelling errors in the final draft.	The final draft has more than 3 spelling errors.
7. Capitalization	There are absolutely no capitalization errors. There are no unnecessary capitals and all letters that should be capitalized are.	There is one capitalization error in the final draft.	There are 2-3 capitalization errors in the final draft.	The final draft has more than 3 capitalization errors.
8. Punctuation	There are absolutely no punctuation errors. Every sentence ends with the appropriate punctuation mark. Quotation marks are used correctly to punctuate dialogue.	There is one punctuation error in the final draft.	There are 2-3 punctuation errors in the final draft.	The final draft has more than 3 punctuation errors.

UFO Investigation FSN Plot

Background

On November 15, 1999, Mr. Revans invited three other teachers from Carter Middle School to go with him on a four day camping trip to the Sunol Regional Wilderness. Begrudgingly, Mr. Westman, Ms. Valley, and Mr. Maingun went since they would get four days off from work. Their trip was cut short when a series of unusual events happened.

The four teachers left on November 16th, 1999. They drove for an hour and a half from Oakland and arrived at the west side of the park at Alameda Groove. On the first day, they climbed three miles up hill to get to the Sunol backpacking campground. The climb was strenuous and difficult for Ms. Valley and Mr. Westman. Many times they had to hike through the bushes because the trail was not very well maintained.

Surrounded by bushes and trees, the campground was a small clearing not too far from the trail. When they arrived in the campground that afternoon they quickly set up camp and started making dinner. Mr. Maingun collected the firewood. Mr. Revans and Mr. Westman set up the tents. Ms. Valley did the cooking. After dinner, they sat around the camp fire toasting marshmallows and that's when they saw the UFO's. Instead of hiking 15 more miles over the next few days, they left and came home the next morning.

Map of the Campground



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Mr. Westman

I'm Mr. Westman. I am the sixth grade science and math teacher at Carter. Astronomy is my favorite unit to teach. I love camping and it's too bad my family could not come with me. I really enjoy spending time with my kids. At first I didn't want to go on this trip because I don't like Mr. Maingun. He is always playing practical jokes on people. Then Mr. Revans changed my mind. It's a shame that our trip had to be cut short.

After dinner the four of us were talking when all of a sudden there were these bright lights in the sky. I don't know what they were, but think they were Unidentified Flying Objects. I tried to take a picture of it, but was unable to get my camera in focus.

A little later, we heard some strange noises from behind the trees near our campground. I saw a strange shadow six feet tall with three arms. Mr. Revans went to investigate and then ran back telling us he saw aliens. The next morning we all decided to go home and cut our trip short.

Height: 6' 3"
Shoe Size: 12
Clothing: red shirt and black pants

Ms. Valley

My name is Ms. Valley. I teach sixth grade math and science. I had a dream the night before that I was going to be abducted by aliens, so I brought my dog Coco on the trip just to help keep us safe.

After a long hike, we arrived at the campground. I started to get the food ready. I was very tired and didn't realize that the trip would be this much work. I made spaghetti for dinner that night. Most of the extra food was dumped in the trees on the opposite side of the campground. Mr. Maingun skillfully made a fire. I took out the marshmallows and other candies I brought for the trip. I can't help being a sweet tooth.

Soon afterwards, the strange lights appeared. Coco started barking. I was afraid that aliens really were coming. Then we saw the shadows in the trees. They looked short and chubby. We went to our tents that night after Mr. Revans returned with what he saw. I couldn't sleep all night.

The next morning we decided to leave early and go home. We left in such a hurry that we forgot about Coco. I hope he's ok. I'm going back to look for him tomorrow. What if he was abducted by the alien visitors?

Height: 5' 10"
Shoe Size: 8
Clothing: green and black shirt with blue jeans

Mr. Revans

My name is Mr. Revans. I teach eighth grade science and math and I am a Pastor. I love camping and being outdoors. I was really happy when the other three teachers agreed to come camping with me. It's nice to take a few days off from work. At first Mr. Westman didn't really want to come, but he quickly changed his mind when he found out the trip would last the entire week.

After we arrived at the campground, I helped Mr. Westman set up the tents. After dinner that night, We saw some strange lights. It looked like things falling out of the sky. Then there were shadows near the trees on the other side of the campground. No one else was brave enough to go investigate, so I went.

I heard a loud noise as I walked around the trees. I saw a large clearing. In the middle were some black circular burnt marks. I wondered if that was where the UFO landed. Then I saw it, a large eight feet long alien that quickly ran away. Because it was dark, I couldn't get a good look. I use to not believe in aliens, now I'm sure they exist. I'm kind of glad we came home early, because I got to go to an important church meeting.

After I came home I had red rashes all over my arms. I think it was radiation burns from the UFO landing site.

Height: 6' 4"

Shoe Size: 11

Clothing: red flannel shirt and blue jeans.

Mr. Maingun

I'm Mr. Maingun. Sixth grade science and math is what I teach. I was very excited to have an opportunity to go camping with my friends at school.

I went to collect fire wood around the trees near the clearing after we arrived at the campground. Since there were lots of good branches under the trees, I didn't need to go to the clearing. The others were cooking and setting up camp. After having some great spaghetti cooked by Ms. Valley, I made a campfire and toasted marshmallows.

Unfortunately I had to go to the bathroom when the others saw the UFO's. I missed the whole thing. I don't really believe in aliens, but agreed to come home early. It's too bad because I was looking forward to a good time. After I got back, I ended up itchy red blisters and rashes all over my arms and legs. Mr. Revans think I got radiation burn from the aliens just like he did, but I don't believe it!

Height: 5' 11"

Shoe Size: 10

Clothing: blue shirt and brown cotton pants

Coco

Coco is a brown Labrador Retriever. He belongs to Ms. Valley. He is a large dog, but very friendly and loves to play with children. Witnesses think he might be abducted by the aliens.

Height: 3.5 feet

Length: 4 feet

Foot Size: 3 inches

Clothing: none

Lost Dog



Name: Coco

Brown Labrador Retriever

Very friendly and loves to play with children.

Disappeared November 17, 1999

during a camping trip in

Sunol Wilderness Campground.

Might be abducted by aliens.

If found please call Ms. Valley at 555-2140

UFO Investigation FSN - Master Station Notes

#	Station Name	Materials	Questions	Directions for Investigators & Signs & Displays
1	Background & Witness Interviews	4 photos of witnesses, statements, video interview, TV/VCR picture of rash, lost dog poster, map and photo of campground area	Write down anything you think is important about the story and each of the witnesses. (table)	Directions: 1. Read or watch the story and the statements of the witnesses. 2. Write down any notes or clues you think might be important.
2	UFO Photography	photo of UFO, historical account of UFO's	Do you think the picture from Mr. Westman is real based on what you see here? Why?	In the past 50 years there have been numerous UFO sightings. Many are false. Directions: 1. Take a look at past UFO sightings. Then compare them with the one that Mr. Westman took. Do you think his picture is real? You can also easily create your own UFO picture in 2 ways. Bright lights on a photograph are often over exposed film. By pointing your camera at the sun or a bright light source and moving the camera, you can get lights that look abnormal. Be sure not to stare directly at the sun. It can injury your eyes! Fake UFO's can also be hung from a fishing line so that it appears to be flying in the sky. This one was taken in Mr. Cheung's backyard.
3	Hair Analysis	3 microscopes, hairs from human, cat, deer,	What kinds of hairs are at the scene?	Animals and people have hairs that look very different under a microscope because the middle medulla layer often forms distinct patterns. Directions: 1. Three different types of hair were found in the clearing near the alleged UFO landing site. They were located at A, B, and C on the map. Look at them and see if you are able to identify their sources. Do Not Move The Microscope Knobs! Hair From Location A Hair From Location B Hair From Location C
4	Fabric Analysis	3 microscopes, fabric samples,	Where do you think the thread at the clearing came from?	Some red thread was found at the scene of the sighting. Only two of the witnesses were wearing red clothing. Directions: 1. Use the microscopes to help you identify the thread. Where do you think the thread came from? Official Evidence – Do Not Tamper! Tread From Mr. Westman's Shirt Thread From Mr. Revan's Shirt Thread From Scene of the Sighting
5	Footprints & Animals	pictures and backgrounds of animals in the area (habitat, diet, behavior, hair samples, footprints), footprints of witnesses, 4 witness descriptions of shadows, human and animal footprints	Based on the footprints, who was at the scene? What animals were at the scene?	A number of footprints were found in the clearing. Some were found near the small dirt trail (A, B, C). Others were found in the mud near the stream (D, E, F,G). There are a number of animals that live in the Sunol Regional Wilderness. Directions: 1. Look at the footprints and compare them with the ones from the witnesses' shoes and footprints of local animals. 2. Who was at the scene? 3. What animals maybe at the scene?
6	Forensic Entomology	maggots in vials, liver in plastic container with maggots.	How long has Coco been missing? About how long has the animal been dead?	An unidentifiable dead animal is found on the opposite side of the clearing. The stomach has been cut open and organs have been removed. The neck is also broken. Some people suspect it might be Coco after he was abducted and experimented on by aliens. Maggots, which are found on the rotting corpses, can be used to indicate how long an animal has been dead. Soon after an animal dies, Blow Flies lay eggs that hatch into maggots. The maggots develop and grow at a very set pace. In 2 weeks they develop into flies. (See sample of maggots developing on a piece of rotting liver) Directions: 1. Look at the maggots from the corpse and compare it with the dated samples. How long has the animal been dead? <i>No dogs were harmed in the making of this Family Science Night. Due to it's graphic nature the picture has been censored!</i>

UFO Investigation FSN - Master Station Notes

7	Plant Identification	samples of leaves in plastic bags, plant keys, description of local plants	What plants are found around the campground? Anything unusual about the plants?	While plants can not speak, they too can reveal clues. Here is a list of trees and bushes commonly found in the Sunol Regional Wilderness. Directions: 1. Identify the leaf samples from different locations around the campground. 2. Use the key. Start at the first number and follow the directions until you reach the name of a plant. 3. Then look up more detailed information on the plant. 4. Do you notice anything unusual? Do not remove the plants from the bags!
8	Soil Analysis	bones, poop, leaves, gum wrappers, trash, metal pieces, dirt	What evidence do you see in the soil that indicates human, animal, or unknown presence?	This is a sample of the soil collected from around the alleged UFO landing site. Soils can often give clues about things that have happened in the past. Directions: 1. Using the spoons, sort through the soil and look for clues. 2. Please do not touch or remove evidence! Touching the evidence may contaminate it.
9	Alien Message	copies of the secret message, decoder	Can you figure out what the message means?	There was a piece of paper with strange writing near the burn marks. Some people think it might be a message from the aliens. Directions: 1. Scientists have decoded the characters. Use the code to translate the message. Can you figure out it's meaning?
10	Metal Analysis	random metal pieces coated with silver spray paint, magnets, conductivity testing equipment (battery, wires, light bulb), samples of known metals, glass, plastic, rock	Which items conduct electricity? Which items are magnetic? (table) Anything unusual about the metal from the scene of the sighting?	A few pieces of strange metal were found near the circular marks. Some of the witnesses say that it might be a piece of the UFO. When scientists discover something new, they often compare it with known items first. All known metals can conduct electricity (allow electricity to pass through). Some metals such as iron are also magnetic (stick to magnets). Non metal objects can not conduct electricity and are not magnetic. Directions: 1. Test the strange piece of metal to see if it is magnetic. A substance is considered magnetic if it is attracted to a magnet. Hold the magnetic wand next to the metal to find out. 2. A substance is conductive if it allows electricity to pass through it. The flashlight has been wired so that when something conductive is placed between the two wires, the flashlight will light up. Test the metal with the two wires. 3. Repeat with the other known types of metal and substances. Compare the results. Vocabulary Words: Conductive – something that allows electricity to pass through it. Magnetic – something that is attracted to a magnet. Metal from UFO? Steel Copper Lead Plastic Wood
11	Astronomy	current astronomy magazines, computer, Redshift 3	Were there any unusual things that happened on the night of the sighting?	Directions: 1. Look at the articles from the current astronomy magazines to see if there were any unusual astronomical occurrences around November 16, the night of the UFO sighting.
12	Create an Alien	paper, crayons, pencils, info on Jupiter's moons	What kind of creature would survive in this kind of environment?	Directions: Read the descriptions of the different planets. Draw a picture of the type of creature that could survive there.
13	Star Gazing	telescope	What kinds objects can you see in the sky?	Directions: Using the telescope in the courtyard, what kinds of objects can you see in the night sky? (Weather Permitting)
14	Conclusion	board with markers	What do you think happened last night? Can you rely on what the witnesses say? Why or why not?	Directions: Do you think the witnesses saw aliens and UFOs on the night on November 16 th , 1999? Please vote on the poster paper

Welcome to Family Science Night!
 Tonight you are the chief investigator using science to discover the truth about a recent UFO sighting. Go to each station and follow the directions. **You do not have to go in order.** Good luck and have fun!

1 Background & Witness Interviews

Write down anything you think is important about the story and each of the witnesses.

Story	
Mr. Westman	
Ms. Valley	
Mr. Revans	
Mr. Maingun	
Coco	

2 UFO Photography

Based on what you see here, do you think the picture from Mr. Westman is real? Why or why not? _____

3 Hair Analysis

What kinds of hairs were found at the scene?

Location	Type of Hair
A	
B	
C	

4 Fabric Analysis

Where do you think the thread at the clearing came from?

5 Animals & Footprint

Who was at the scene?

What animals might have been at the scene?

6 Forensic Entomology

How long has Coco been missing?

About how long has the corpse been dead?

Do you think the corpse is Coco?

7 Plant Identification



What plants are found around the campground?

1. _____
2. _____
3. _____

Anything unusual about these plants?

8 Soil Analysis



What evidence do you see in the soil that indicates human, animal, or unknown presence? _____

9 Alien Message



Can you figure out what the alien message means?

10 Metal Analysis



Which items conduct electricity? Which items are magnetic? Fill out the table.

Item	Magnetic? (Yes or No)	Conductive? (Yes or No)
"Alien" Metal		
Steel		
Copper		
Lead		
Plastic		
Wood		

Anything unusual about the "Alien" metal from the scene of the sighting? _____

11 Astronomy



Look at the articles from current astronomy magazines. Did anything unusual happen around the November 16, 1999, the night of the UFO sighting?

12 Create an Alien



What kind of creature would survive in an alien environment? Draw a picture.

13 Star Gazing (Weather Permitting)



What things can you see in the night sky?

14 Conclusion



Do you think the witnesses saw aliens and UFOs on the night of November 16th, 1999? Please vote and write your explanation on the poster paper.

Thank you for coming to Family Science Night! We hope you had a great time. Door prizes will be given out at 7:45. Be on the look out for our next Family Science Night in May!