

October 1999



California
Gold Rush

OCTOBER 1999 – CALIFORNIA GOLD RUSH

Focus. Now here's a theme we can really sink our teeth into! It gets us thinking about the way the West was really formed. It gives us a chance to look at history and to have fun in the process. Enjoy!

PACK MEETING IDEAS

PreOpening Activities

GOLD RUSH WORD SEARCH

Don't worry, this is the last of them (for this year, at least!). Here's one that focuses on that very special time and place in history—the California Gold Rush. Hand these out at the Pack Meeting and see what nuggets the folks can dig up!

CALIFORNIA GOLD RUSH

Hand out sheets of paper with the words "California Gold Rush" at the top and tell everyone to see how many words they can get from the letters. Make sure you have some kind of gold nuggets to give out as a reward for the highest word counts!

Opening Ceremonies

THE RUSH IS ON

NARRATOR: It was 150 years ago, when the first big Gold Rush happened. A man by the name of James Marshall was checking to make sure that some carpentry work he had done had survived weekend storm. What he found at the bottom of the sluice when he found the first gold at Sutter's Mill. That was the start. Now, 150 years later, the Gold Rush continues. But this time, it's the Blue and Gold Rush!

Cub Scouting continues to grow in the United States. And why? For the same reason that the population of San Francisco exploded in 1849—people know a good thing when they see one and they want to get a piece of the action.

And Cub Scouting is just that! It's action! Cub Scouting provides boys the chance to grow in a healthy, fun environment. It offers the opportunity to explore, to discover, and to grow.

So join me now as we get this Gold Rush under way. Would the color guard please present the colors.

Please join in saluting the flag and recite the Pledge of Allegiance.

FINER THAN GOLD

There is one thing, that's finer than Gold.
At least that's what I've always been told.

It's seeing people's smiling faces.
Enjoying all of life's good graces.

Having fun, while helping others,
And treating all as sisters and brothers.

Cub Scouts are like this I know
I've seen them come and seen them go.

Each one does his best always.
It makes for better, brighter days.

And while Gold is bright and never gets old.
It will never shine like "the Blue and the Gold."

As we celebrate the spirit of Scouting tonight, please join in saluting the flag and reciting the Pledge of Allegiance.

Activities

GOLD RUSH FUN

This can be a Pack Outing or Picnic (although it's not the best month to predict the weather for a picnic!)

Assign each den a duty. Parents from the dens are responsible for running the events at the pack meeting.

Assignments:

1. Make a Gold Field: Stake out about 200' by 200' using colored flags, cloth triangles, or pennants tacked to stakes.
2. Make a sign saying "Gold Prospectors caught with more than 2 nuggets at any time will be arrested by the sheriff, thrown in the hooscow, brought before the judge, and sentenced to the wet sponge treatment.
3. Make gold nuggets by spraying stones about the size of sugar cubes with gold paint. A couple #10 cans full of nuggets should more than handle it. Sprinkle the nuggets on the field.
4. Make wet sponge treatment stockade. A large cardboard box that has a hole or two cut so a head can fit through it. Also holes for hands. Paint it to look like a stockade. Furnish a bucket of water and sponges.
5. Build Assay Office. Have individually wrapped pieces of candy—about 10 pieces per prospector. At the Assay office have three or four kinds of candy and give out different candy for different sized nuggets.
6. Build General Store, where baked goods are sold and furnished by the dens.
7. Build Jail. The jail is maintained by the assigned sheriff (den). This can be a roped off area labeled JAIL.
8. Establish a Court. A judge and jury to pass sentence on those caught with more than two buggets at a time.

To run the event:

As soon as all the dens have gathered and prepared their assigned areas, call the pack together for the Opening. After the Opening, explain that all children

are prospectors. They are sent into the gold field to find the gold. They can only find two nuggets at a time. If they grab too many the sheriff can arrest them and throw them in jail. If convicted, the offender is subject to the sponge treatment and then released. Prospectors may turn in their nuggets at the assayer office for payment. Meanwhile, families can visit the general store to get baked goods. Prospectors may return to the gold field as long as time permits and nuggets remain.

SNOOT FULL OF DUST

This story comes from an on-line newsletter called the frontier mining news. I have modified it so that the same words are repeated enough to make it a good audience participation activity.

Gold - Ooooooh Aaaaaah

Miner - There's gold in them there hills

Bear - Roar

SNOOT FULL OF DUST As long as miners have been prospecting, they've to share the high, lonesome world with the inquisitive bear. Sometimes it's a grizzly, or a black bear. Brown bears are a little smaller, but they can be just as troublesome and raise jake with a miner's work. Regardless of color, bears be bears and when a man gets one in his camp and he's not close to his rifle, wilst he'd better be quick thinking of a way to defend himself and his property.

Seems that's how they're telling the story over Tin Cup way. And the story goes like this. One sunny afternoon in June on a nearby creek, an old duffer miner was working some rich gold grains out of a pan full of sand, totally unmindful of anything going on around him. He heard a roar up aways on the far side of the creek where he'd made camp, and, looking up, the miner spied a big old black bear having a feast in his victuals. And not only that, but that bear was rootin around like a pig in his sack full of gold dust. And to make matters worse, he'd left his Sharps on the same side of the creek as the bear. The miner reckoned if he make a move to go for his gun the bear might come after him being that the critter was having quite a time on the prospectors recently butchered haunch of venison. All he could think to do was grab a handful of rocks from the stream , yell at the bear, and start throwing stones as hard as he could, while he sloshed across the creek for his gun.

Well, the old bear must of had his fill because he took off up through the trees as the old miner, flaming mad, ran up to his gun and fired a shot after him, but

to no avail as he was long gone. Looking over the damage, the man saw that the bear had also torn open his bag of gold dust, about a month's worth of work all told, and it was scattered hither and yon in the dirt and would have to be washed out all over again. That did it, what with the bear chewing away a good haunch of venison and helping himself to some other goods, and worst of all, spilling his gold dust all over the place, well the miner decided to get even, and in the process, have him some fresh bear meat that night for supper.

He takes out after that bear, with gun in hand and revenge burning in his eyes, and in a few minutes the irate miner had that bear treed on a ledge less than a mile from camp. While the bear was lookin down from ahigh and growling his displeasure, the sun catches his nose and face, revealing to the old Prospector a mass of yellow gold dust caught up in the bear's face hair and sparkling in the sunlight . He shot the bear, drug him back to camp, skinned and hung him out to cure, and then spent the rest of the day and night combing his head to retrieve his valuables. As the story goes over in Tin Cub, that bear's paws were also full of gold flakes between the toes, but they weren't anything the old Prospector remembered panning. So, now that the word's out, there's an small army of gold bugs out there trying to retrace the bear's steps and find where he might'a been stompin around. There's lots of streams over in the San Juans and you can bet one of them will be a new gold find providing they can find where the bear was padding around. But the bear ain't taliking.

http://www.frontierminingnews.com/current_issue.htm

Songs

GREEN GROW THE RUSHES

I'll sing you one-ho, green grow the rushes-ho.
What is your one-ho?
One is one, and all alone, and ever more shall be it so!

I'll sing you two-ho, green grow the rushes-ho.
What is your two-ho?
Two, two, lily white boys, cloth-ed all in green-ho
One is one, and all alone, and ever more shall be it so!

[Continue: adding each verse and repeating backwards to, "One is one, and all alone, and ever more shall be it so!"]

Three, three, the rivals;
Four for the Gospel makers;
Five for the symbols at your door;
Six for the six proud walkers;
Seven for the seven stars in the sky;
Eight for the April rainers;
Nine for the nine bright shiners;
Ten for the ten commandments;
Eleven for the eleven who went to heaven;

HOME ON THE RANGE

Oh give me a home where the buffalo roam,
Where the deer and the antelope play,
Where seldom is heard a discouraging word,
And the skies are not cloudy all day.
Chorus
Home, home on the range, where the deer and the antelope play,
Where seldom is heard a discouraging word,
And the skies are not cloudy all day.

Where the air is so pure, and the zephyrs so free,
The breezes so balmy and light,
That I would not exchange my home on the range,
For all of the cities so bright.

The Red man was pressed from this part of the west,
He's likely no more to return,
To the banks of the Red River where seldom if ever
Their flickering campfires burn.

How often at night when the heavens are bright,
With the light from the glittering stars,
Have I stood there amazed and asked as I gazed,
If their glory exceeds that of ours.

Oh, I love these wild flowers in this dear land of ours,
The curlew I love to hear cry,
And I love the white rocks and the antelope flocks,
That graze on the mountain slopes high.

Oh give me a land where the bright diamond sand,
Flows leisurely down in the stream;
Where the graceful white swan goes gliding along,
Like a maid in a heavenly dream.

Then I would not exchange my home on the range,
Where the deer and the antelope play;
Where seldom is heard a discouraging word,
And the skies are not cloudy all day.

THIS LAND IS YOUR LAND

This Land is your Land:

This land is your land, this land is my land,
From California, to the New York Island,
From the Redwood Forest, to the Gulf Stream
Waters,
This land was made for you and me.

I roamed and rambled, and I followed my footsteps
To the sparkling sands of her diamond deserts
And all around me a voice was singing
This land was made for you and me!

This land is your land, this land is my land,
From California, to the New York Island,
From the Redwood Forest, to the Gulf Stream
Waters,
This land was made for you and me.

As I went walking that ribbon of highway
I saw above me that endless skyway
I saw below me those golden valleys
This land was made for you and me!

This land is your land, this land is my land,
From California, to the New York Island,
From the Redwood Forest, to the Gulf Stream
Waters,
This land was made for you and me.

As the sun was shining, and I was strolling,
And the wheat fields waving, and the dust clouds
rolling,
As the fog was lifting, a voice was saying*
This land was made for you and me!

This land is your land, this land is my land,
From California, to the New York Island,
From the Redwood Forest, to the Gulf Stream
Waters,
This land was made for you and me.

Skits

THE LUMBERJACK

Announcer: This scene takes place in a hardware store in a small, north-woods lumber town.

Lumberjack: (Enters): My old crosscut saw is worn out, and I need something that will let me cut more wood, or I'm going to go broke !

Owner: Yes, sir ! For only one hundred bucks you can be the proud owner of this chain saw. I guarantee that it will cut twice as much wood in a day as your own crosscut.

Lumberjack: (Handing over money): O.K. great!
(Exits)

Announcer: The next day.

Lumberjack:: (Enters tiredly) There's something wrong with this saw. I worked very hard yesterday, and only cut half as much wood.

Owner: Well, sir, I have a lot of faith in this product. Here, I'll put a new chain on it and you give it another try.

Lumberjack:: O.K., but if it doesn't do any better, I'll be back! (Exits)

Announcer: The next day.

Lumberjack: (Enters exhausted) This darned saw is no good. I worked even harder, and still it won't cut half the wood of my old saw! I want my money back!

Owner: Yes, sir! Just let me check it out here. (Pulls starter rope.)

Announcer: (Makes sound effects of saw running.)

Lumberjack: Oh, my gosh! What on earth is all that noise?

THE ECHO

The leader (prospector?) announces that during recent mining activities he noticed an echo in the mine and he is going to try it out (also could be on a hike overlooking a canyon). The following is a dialogue between the leader and the echo - a person (or people) out of the room or out of sight.

Leader: Hello

Echo: Hello

Leader: Cheese

Echo: Cheese

Leader: Bologna

Echo: (silence)

Leader: (to group) It must not be working now. I'll try again. (to echo) [Cubmaster's name] is great.

Echo: Bologna

Advancement Ceremonies

PROSPECTORS

[Note that this and other ceremonies should be reviewed and modified to suit the specific awards being giving at the meeting. This ceremony is written so that any particular award can be used or omitted without impacting the whole of the ceremony.]

Setting: Cubmaster and Advancement Coordinator (or Assistant Cubmaster) are "duded up" in their best prospectin' duds. Add extras like a pick, double-jack, etc. The dialog begins with 'em remembering the last dig they worked up in them mountains.

(BOBCAT)

#1: I 'member that there cat up on the ridge. Now that there was some kinda animal. He jes wouldn't take no for an answer. He was bound and determined to get up that slope.

#2: Yessir. Like some other Bobcat's I know! We got us a passel of 'em right here 'mong us! [Calls up Bobcat recipients and parents.]

#1: Ya reckon these here Bobcats been knawing on them requirements 'nough so's they're ready to git them Bobcat badges?

#2: Reckon so! 'Cordin' to that there Akela feller these here younguns and their kinfolk been workin' mighty hard. Reckon they're ready as ever.

[Give awards to parents to give to boys.]

#1: Well that sure is somethin'! Whadda ya think? Figure we oughta give these here 'cats one o' them echo applauses? [Leader yells "Great Job" and three sections of the room sequentially repeat the yell, each in a lower volume. Bobcats return to their seats.]

(WOLF)

#1: Well I can't say as I'm sorry they're gone. Sight of a 'cat give a feller cold shivers!.

#2: Aw! 'Cats ain't nothin' to fright a person like one of them wild dogs—them wolves. Heard me a story one time 'bout a feller out in the woods by his lonesome some across a pack o' them wolves. There they was all gathered 'round some big rock pile. with this one

old, grey wolf standing at the top lookin' and yelpin' at the other'ns as if they was a talkin'! Now whadda suppose a pack o' wolves got to talk over?

#1: Well, here tell we got some wolves tonight been talkin' up a storm 'bout all kinds o' stuff. [Calls Wolf candidates and parents up.] These here wolf cubs been yappin' 'bout doin all kinds o' requirements (big word for doin' what's gotta be done).

#2: And ya think these fellers are ready to call themselves Wolves?

#1: Yup! Goes back to that Akela feller 'gain. He says them boys and their elders been workin' ta gether and have done them—what was that word? 'quirements?—yeah, they done finished their requirements.

[Give awards to parents to give to boys.]

#2: Now I wanna try that there echo thing! [Same echo applause, but other words, e.g., "Well Done Wolves."]

(BEAR)

#1: 'Member that there time up in the hills we come across another animal. You there thinking there weren't nothin' around and come to find out a great big ol' grizz been watching you cookin'?

#2: 'Member! How's a feller ever forget soething scares him half outa his wits? Them bears, now them a different sort. Recon it takes a mighty strong constitution to be a bear!

#1: Constitution? Cut out with all you fancy fandangle words. You don't even know what that means. Constitution!

#2: Sure do! Means how a fellers put together. If'n a feller ain't so solid, like he don't try real hard to do everthing, they say it's a weak constitution. But if a feller's always doin' his best, workin' real hard at things, why he's got a good constitution.

#1: Gimme an example!

[Calls Bear candidates and parents to the front.]

#2: There! There's [# of Bears] examples! These here bears been workin' and learnin' and studyin'—probably know more 'bout the country than you an' me both—and that there Akela says they're ready to git the Bear badge. An' that's a good constituion!

[Hand badges to parents to give to boys.]

#1: Let's try a special echo—"Roar"

(WEBELOS)

#1: But fer all the prospecting and rock choppin' we've done, I can't ever remember somethin' more special than the time we run into them Injuns.

#2: Injuns? You mean them Na-tive Americans? Yeah. They was special alright. What was it they called that there tribe?

#1: We-be-los! Called themselves the Webelos tribe. And my they were a sight. Bunch o' young bucks all learned up and rarin' to go. Seems they was on their way to becoming somethin' else. What was that they was fixin' to become?

#2: Boy Scouts, I think they called it! Yup, Boy Scouts. Reckon we won't ever trun into a bunch like that agin.

#1: Don't go bettin' on that! I here we got us some o' them Webelos tribe here tonight. [Call up Webelos and parents.] An' they ain't no different than the ones we run into before. Each one of 'em has benn aworkin and has got his 'quirements all done. Even had a set to with some o' them Boy Scouts.

[Give awards to parents to give to the boys.]

#2. Well I reckon we'd best get back to muckin' but before we head out, let's try one more thing. [Final echo cheer: Do Your Best!]

Closing Ceremonies

G-O-L-D

Cubs have cards with the letter g, o, l, and d. They hold them up as they say their lines.

G stands for Great Time. We hope everyone has had a great time tonight.

O stands for Over. Our Pack Meeting is over.

L stands for Let's. Let's get together again next month.

D stands for Do. Everyone should Do Your Best!

H-A-L-L-O-W-E-E-N

Arrangements: Large cards with the letters H A L L O W E E N.

Nine cubs are holding the cards and, in sequence read off their lines. After they have finished their lines they all say "HAPPY HALLOWEEN"

H = Halloween
A = Awesome
L = Laughable
L = Lovable
O = Outrageous
W = Wacky
E = Eerie
E = Exciting
N = Neat

HALLOWEEN WITCHES BREW

The Den leader witches are back at their pot of brew. One of them recites:

We've put a lot into this stew,
And we came out with a pretty good brew.

The parents have had a chance to learn,
The ranks attained and badges earned.

Everyone will return a month from now,
To attend our meeting and find out how,

Each boy has fared, advancements made,
For on his merits, each Scout is weighed.

CUBMASTER: (Spotlight switches to Cubmaster) I want to thank each of you for attending our pack meeting. Remember Scouts, our witches brewed up quite a few extra badges in their pot. So everyone work hard this month and earn a new badge for our next meeting.

DEN MEETING IDEAS

Places To Go & Things To Do

DO SOME PROSPECTING

The following information was taken off the internet. It identifies one place that apparently offers panning. Following it was a Geologist Report about gold in York County. Why not check out either going to the panning place or doing some of your own panning.

PENN'S CAVE, INC.
R. R. 2, Box 165A
Centre Hall, Pennsylvania 16828
Telephone: 814-364-1664
Fax: 814-364-1479
<http://www.pennscave.com/>
email:pennscave@compuserve.com

The East Coast Prospector

The Geologist Report on Gold in South Eastern Pennsylvania

This is exactly how we received it via E-Mail!

From: Geologist Jeri Jones

Above shown is Mr. Jeri Jones Geologist "Teaching Gold Prospecting and Gold Panning"

Web Address JLJ276@aol.com

TO : prospect@epix.net

Being a Geologist for York County, Pennsylvania, I can refer several areas in Southeast Pennsylvania, for Gold Prospecting. The best in York County is located in Stony Run about 1.5 miles east of Dillsburg. The Gold is coming out of the diabase. Flakes are up to .30 of an inch.

Spring Valley County Park, located about 3.0 miles east of Exit 2 Interstate 83 also supports Gold Washing out of the Metavolcanics in the area. The York County Department of Parks and Recreation sponsors a Gold Panning Seminar on the last Saturday of July from 9a.m. until 2p.m. Signs are

posted from I-83 on the day of the event. The largest flakes here are about .25inch.

The Piegion Hills, a highlands area west of York and Hanover has some Gold, again washing out of the older metavolcanics on the north slope of the ridge. Streams are tough to find and water flow is rarer.

In Southeastern York County, many of the streams south of Muddy Run near Delta have Gold. The closest to finding Gold in place has been in some of the abandoned slate quarries around Delta. Largest flakes here are about .40 inches. Just west of this area is a cross road known as Constitution.

To mineral collectors, this area has been known for years for its rutile, but Gold has also been discovered here in recent years. The largest flakes here has been measured at .075 inches (the largest in S.E. Pennsylvania).

In Northern York County, any stream found between the villages of Dillsburg, Wellsville and Rossville will yield Gold (from the diabase).

In Lancaster County, Peters Creek, west of Quarryville has yielded some nice Gold, some flakes up to 0.6inches. Native platinum has also been reported from this area.

As far as your report on Gold from Codorus State Park, I was not aware of that report but found it interesting.

Signed
Geologist Jeri Jones York County

ORE PROSPECTING

Here is another place that offers panning...

Indian Echo Caverns

45 minute walking tours, gemstone panning, accent the caverns flowstones and underground lakes. Just west of Hershey.

ORE MORE PROSPECTING

At the end of this section are two different selections that talk about how to prospect. Use this information to do a little panning.

Den Meeting Activity Ideas

TELL A STORY

Following are a couple interesting stories about mining. Take some time out to read to the boys. I am sure they'll find these kinds of stories truly fascinating.

The Blue Bucket Mine

Somewhere in Oregon, or is it Idaho, is the famous Blue Bucket Mine. It was found by a child, playing with her sand pail in a dusty ravine. It wasn't until weeks later that the adults took notice of what she was playing with, that they discovered she had a bucket of gold nuggets. The adults can't be blamed for not noticing what she had, they had been lost for weeks in the high desert of Oregon.

The way the story goes is, they followed a fellow named Meeks, who was going to show them a new route to the Willamette Valley. He told them he knew a way to bypass the Blue Mountains and the subsequent raft ride down the Columbia. They left Fort Boise on August 24th, 1845. After crossing the west bank of the Snake River they found themselves in a barren desert with very little water. It didn't take long to realize that Meeks was hopelessly lost. They spent weeks trying to find their way to The Dalles. Sometime during that desperate period gold was discovered. Of all the dry camps along that journey, which hid the gold?

Of course after they made it to civilization and discovered what had been found, they were ready to go back and try to find the gold. But with all the wandering they had done, no one could retrace the trail they had taken. Even if they could have retraced the trail, how many dry washes are there from Fort Boise to The Dalles? The search went on for years, but all in vain. The treasure has never been found.

Some where in that vast area from the Snake River to the Deschutes River, Between Steens Mountain and Tygh Valley, is a stream bed full of nuggets. Maybe you are the lucky miner, with his trusty detector, that will find the fortune, who knows?
<http://treasurehunt.miningco.com/library/weekly/aa012898.htm>

AND ANOTHER STORY

Lost Gold in Wyoming

Another Lost Cabin Mine?

Our story this week takes us to the Bighorn Mountains in Wyoming. The first to find the mine was a man named Allen Hulbert. Along with two friends, known only as Jones and Cox, he left Walla Walla, Washington, in 1863 in search of gold. They built a raft on the Yellow Stone River and floated down stream to the mouth of the Big Horn River. They left the raft and traveled southeast to the Big Horn Mountains. It is said they made their discovery on the North Fork of Crazy Woman Creek. They stopped there to drink and pan, the color was so rich they couldn't believe their eyes!

Working through the summer, they were averaging \$100 per man. (This with the price of gold at \$20 per ounce!) They decided to spend the winter and built a crude cabin with a stockade around it. At first though they went back to work. This year they were finding even more than last! Then came the fateful day, as they were working Hulbert went to the cabin to get something he had forgotten. On the way back he heard shouts and saw Indians attacking the others. He climbed a tree and hid till they were gone. After they left he found his partners scalped, and dead. He buried the men, loaded up the gold and left, traveling only at night. He wandered for weeks, until he finally reached the North Platte River. There he encountered a wagon train and told them his story. Showing them the gold, he convinced the entire Wagon Train to follow him. He was never able to find his way back to the gold. He was almost hung by the people on the train for leading them on a wild goose chase! He never found his way back to the gold again.

Mine Found Again!

It is said that the mine was found again by Jim Bridger. He was leading the Reynolds Expedition through the area when he found an old cabin. He went to the stream for a drink and found nuggets glistening before his eyes. He gathered some of the nuggets and showed them to the commander of the expedition. Fearing the Men would desert the expedition, he told Jim to throw away the nuggets and tell no one. Jim did as he was told and the mine was lost again.

<http://treasurehunt.miningco.com/library/weekly/aa021898.htm>

WHERE TO LOOK FOR GOLD

Pennsylvania

Gold has been reported in Wyoming County in the northeastern part of the state. The Susquehanna River and its tributaries have yielded nuggets up to dime size.

State forest and game lands are open to panning and prospecting.

<http://treasurehunt.miningco.com/library/weekly/aa123097.htm>

Maryland

The majority of gold in Maryland is found in the Great Falls area of Montgomery County. Gold can also be found in Frederick, Carrol, Howard, Baltimore, and Hartford Counties. Mining Panning and prospecting may be done only with land owners permission.

<http://treasurehunt.miningco.com/library/weekly/aa123097.htm>

Games

GOLD RUSH FUN

One game that can be played at the den level is a modified version of the one under Pack Activities earlier in the section.

GOLD NUGGET RELAY

Because the California Gold Rush was on the west coast (as in California), there were a significant number of Chinese immigrants working the gold mines. Combining the Asian influence with the gold gives you an opportunity for a gold nugget relay—using chopsticks!

Materials:

Gold nuggets (1/2-inch diameter stone painted gold, at least one per person)
Chopsticks for each team
Four mining (pie) pans

Divide the den into two teams. Each team is given a pair of chopsticks. The gold nuggets are evenly divided into two pans at the starting line. In turn, each boy takes a gold nugget from the pan, carries to

the "finish line" where the other pan is, and deposits it. He runs back to the starting line and hands off the chopsticks to the next boy.

Hershey almond kisses make great gold nugget "rewards" at the end of the game!

Note: As long as the number of nuggets is the same for each team, the teams can be uneven. Some boys will just have to go more times.

GOLD NUGGET TOSS

Note: Half the fun in this game is the boys making the game.

There's gold in them there hills! Have the boys make a mountain target out of poster board backed by a sturdy stand (an easel or frame). Have them cut holes (large enough to toss nuggets through but small enough that it's an age-appropriate challenge) at different "elevations" on the mountain. You'll also need gold nuggets made by spray painting small stones.

Assign a point value to each hole and have the boys toss the nuggets to see who gets the highest score.

GOLD NUGGET TOSS II

This is similar to the game above, but has a different target. Try to find different size pie pans and then glue them together one inside another inside another, etc. for as many different sizes as you find. Assign a point value to each pan area.

Crafts

A FANTASTIC WEBSITE

Don't it always go this way?! Here I am almost completely finished this Pow-Wow book and I finally find the ultimate website for crafts. Actually this is a website of links for Cub Scout-age craft project links. The address is:

<http://www.geocities.com./Yosemite/9152/crafts.html>

CALIFORNIA GOLD RUSH WORD SEARCH

This puzzle contains words and phrases related to The Gold Rush. See how many you can find.

C H T A H Y S W I H P I O D L X X V W N
E D J A M E S M A R S H A L L I Q K P J
U X L U L I J I O E U U I W U S K F E C
P H G U A T N S X V V M R N A A M P T B
K D M I G F P E O I S K L D T D G F U L
I N V E Q E H K R R G X D F L V Z P M O
N W M B C R C R E N I N Y T R O F J T Z
G N I T F I S T I A T U N M F O G J K O
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T Z Z T O I Q Z I M A T U Q R R D Q J A

AMERICAN RIVER
CRADLE
DYNAMITE
FORTY NINER
GOLD DUST
GOLD MINE
GOLD RUSH

JAMES MARSHALL
MINER
MULES
NUGGETS
ORE
PANNING

PICK
PLACIER
PROSPECTOR
SAN FRANCISCO
SIFTING
SUTTERS MILL
TIN PAN ALLEY

How to Find Gold

<http://www.dnai.com/~wfw/how.html>

This page will focus on the different methods for getting placer gold from where it is now into your bottle.

Introduction to Prospecting

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Mark Roberts is a Middle School Technology teacher who has taught in Maine, Vermont and is currently living in the Tampa , Florida area. Mark Spent a summer travelling around the country and learned about gold panning first hand.

"To John, whomever you are. Thank you for showing me how to find gold at Kirkham Hot Springs, Idaho, July, 1985."

How fascinating the pursuit of gold is! It can be found in most mountainous areas in our country. Finding gold can be an enjoyable experience, not so much for the monetary value of the metal itself, but more for the opportunity to stop and experience the beauty of nature or sharing in a family activity, perhaps where the kids can enjoy a little time to swim and explore can be very rewarding.

Many of us travel too fast in our lives. Panning for gold is an activity that can really pay dividends other than the procurement of the precious metal. But as anyone interested in the sport of fishing knows, the fisherman can never predict whether the next cast will bring him a trophy or no fish at all. So to the prospector does not know what his pan will yield with each successive panning. Perhaps nothing, perhaps a few lead sinkers from those fisherman who have also plied the stream for rewards, or just maybe a small nugget of..... Good hunting!

Interesting facts about gold:

When it is found in nature it can be pure, 24 karat. Since gold does not oxidize, its color makes it easily identified. The high density of gold allows its deposition in unique places in a stream. A bar of pure gold measuring 2" X 3" X 10" would weigh approximately 43 pounds. Although it is rare, many areas of the United States contain enough gold to readily find it. Among metals it has the highest degree of malleability, that is, bendability. Gold Leaf can be pounded out to a thickness of 15 atoms wide. 1000 sheets of gold leaf equal the thickness of a human hair.

Where is the Gold?

Gold can be found in many areas. The techniques discussed in this article can be employed to find gold in many areas, therefore, the finding of the gold will be approached from a general point of view.

Streams are commonly associated with the finding of gold. This gold is known as placer gold. This means that the gold has been weathered away from its mother lode, literally the mother of the smaller fragments. It is the finding of placer gold that can create a trail to the mother lode. The method most commonly employed is panning. The process of panning is when the prospector uses a specially designed gold panning pan to locate his treasure. Streams are an excellent place to look because of several factors:

1. A stream passes through many miles of possibly gold laden minerals.
2. The density of gold (10 times as much as common sand) allows it to be deposited in special places in or adjacent to the stream area. These places are commonly known as "pay streaks"
3. Spring floods will redeposit gold to provide a new supply annually.
4. It is a cool place to spend a summer afternoon.
5. The kids will love a frolic in the water while you can prospect for gold.
6. There is a variety of other natural things to enjoy while you unwind.
7. Roads commonly pass along streams and river paths creating ample opportunity to prospect.
8. The placer gold that is located will sometimes form a trail to the location of higher quantities of gold and its source, the mother lode.

Which Streams contain gold?

Generally speaking, streams that are most likely to contain gold must have four characteristics.

1. They should be unregulated (not dammed).
2. They should be in a mineral rich area
3. They should fall through enough elevation to cause sufficient churning in the spring flood
4. Stream path and rock formations facilitate the deposition of the dense materials (gold, lead, iron, mercury etc.)

Unregulated streams: This factor is important because this technique is based on the spring flood churning up the minerals found in the stream bed. When this is done during the Spring flood, the gold and other dense materials fall to the bottom of certain areas first. This concentrates these materials which allows prospectors find them.

Mineral Rich Area: A good indication as to whether you are in a mineral rich area is to look at the rocks exposed by the stream erosion and highway cuts used in road construction. Virtually any place that the rocks show a non sedimentary layering will probably be an excellent place to look. This mineral layering is very infrequently level. Many times the rock layers appear to bend and incline. Quartz is commonly found in parts of the layering along with feldspar or other identifiable minerals. Consult field identification manuals for a more specific description of these minerals. They are common and can be easily identified with a little research. Another indication of a mineral rich area is the presence of black sand. Placer gold is usually found with black sand but the presence of black sand does not necessarily indicate the presence of gold.

Elevation drop: As discussed earlier, gold is extremely dense. If the stream in which you are looking is slow moving and flat, the dense material will have settled out far upstream. As the meandering stream makes its way, it travels in a lazy, snake-like manner, twisting one way then the next. These rivers will provide you with little success. Rapids and waterfalls and white water are indications of quick elevation drops. The spring flood will churn up everything in the river's expanded boundaries.

Stream path and rock formations: As mentioned before, placer gold settles in specific areas of a stream bed called pay streaks. These pay streaks are most often found where the water flow slows down significantly. They may also form along a path which follows the shortest, straightest path down the stream bed at high water. As the Spring flood recedes, the deposits can be left some distance above a low, common Summer water level. When looking for a good place to search, imagine what the river would have looked liked during the flood (better yet, go take a look if you can get there). Most streams do not travel in a straight line for very long either horizontally or vertically. The inside of the bends and where the stream levels out after a steeper run are good places for pay streaks to form. Another good spot to look can be found on the down stream sides of large boulders and other obstacles. These create an area where the flowing water slows down for just a short time. The highly dense materials can be concentrated here. Other obstacles include bed rock ridges and large fallen trees. The obstacles can be even more productive if they are in that shortest, straightest path down the stream bed. Pay streaks may take several years to form so the best obstacles to investigate are those which appear to have been there for a long time. The best rock formations that help the prospector are those that trap dense materials that are flowing by during the flood. These formations can be best described as exposed bedrock with small, near vertical fissures. Smooth, well worn bedrock is almost never productive.

Where to look for gold

Gravel bars usually found on the inside of the river bends. Although the gold here is mostly small flakes to very fine, there sometimes is a lot of it. Where the stream levels out after a steeper part such as downstream of rapids or waterfalls. Newly formed gravel bars. Small streaks of gravel laying on the bed rock but you will need some sort of sucker to retrieve it if it is underwater. Down stream sides of large boulders and other obstacles which because of size or other factors appear to have been there for a long time. Pot holes in the bed rock Cracks in the bed rock. In popular prospecting areas, the large, obvious cracks have most likely been cleaned out many times. Look for lines of moss running along the bed rock. There is almost always a small crack under the moss and these cracks can contain a surprising amount of gold. Moss and grass roots near the river. The high benches. As a stream cuts deeper into a canyon, it can leave patches of gravel high on the canyon wall. These are called benches. Look for round or rounded rocks well above the present high water level. Round or rounded rocks have lived in a river at some time in their lives.

Always keep in mind that these are the most likely places to find gold. There is an old saying: "Gold is where you find it." What this really means is, you may find a spot that looks perfect and not find any gold at all or you may find a spot that looks like it would be barren but you find a "bonanza." Just try to keep your mind open to all possibilities.

What equipment is needed to pan for gold?

Unlike many activities that require a sizable investment, gold panning is inexpensive. Most of the tools needed are commonly found around the home. The minimum equipment needed is:

1. A gold Panning pan
2. Slotted Screwdriver
3. Paint brushes
4. Tablespoon
5. Garden shovel
6. Utility bucket
7. Small bottle.

Optional items include a classifier, sniffer bottle, ice pick, garden trowel and commercial crevice tools.

Gold panning pan: Gold panning pans are available in some commercial locations or through mail order. The pans themselves come in at least two materials, black plastic and unpainted steel. Several pan diameters are also available. These pans are designed for the specific purpose of panning and it is highly recommended that they be purchased. The strength of the prospector should be the determining factor as to which diameter to choose. The larger the pan, the more material can be searched but it will be heavier. This disadvantage in weight is an advantage in the chance of success. The larger the amount of material searched, the greater the chance of success.

As to the pan material itself, each have their pros and cons. Steel is most often associated with the old time prospector. The prospector also could heat up food and water in his pan. If panning and heating water and food seems to make sense to you, then steel could be the better choice. Since many streams contain mercury either naturally or from previous mining operations, using a gold pan for cooking can be very dangerous. Both pan materials have their advantages and disadvantages and with a little thought the prospector will choose the style which best suits his needs.

Steel pans will sink while plastic pans usually float. If a steel pan is dropped in deep water, it will quickly sink to the bottom but it will stay put in shallow water and will not float away. If a plastic pan is dropped in fast water, it must be retrieved immediately or it may have to be chased for some distance. Steel pans must be protected from corrosion or they will rust although some prospectors believe a thin layer of rust creates a rougher surface which helps retain fine gold. The best way to prevent rust is to allow the pan to dry out when not in use. Leaving damp concentrates in a steel pan will cause it to rust rapidly. New pans usually have a thin coating of oil to prevent corrosion. This oil can cause the loss of fine gold by adhering to the small particles making them float out of the pan. The oil can be removed by heating the pan at least until it turns blue and stops smoking. Paint thinner or other solvent may also be used. Steel pans may also be used to heat up concentrates to dry them.

The plastic pans are generally black, green or blue in color. Small gold flakes and black sand are more easily identified against the contrasting colored background. They do not corrode and are generally less expensive than the steel pans. A magnet may be used to remove magnetic black sand in a plastic pan.

They come in two basic shapes: the regular flat bottom and the drop center bottom. The drop center bottom retains the heavy material at the bottom and helps prevent it from moving up the side of the pan but it will make it more difficult to remove this material and pan down to just gold. The drop center pan is probably the best choice for beginners. Various types of gold traps called riffles are often molded into the side of plastic pans. These traps usually cover about one third of the side to help keep the heavier material in the pan. They can look like stair steps or ridges. The stair step type will allow faster panning initially but at some point they will get in the way and the smooth side of the pan will have to be used to finish up. There will be less material left in the pan with the ridge type of riffle when this point is reached.

All the different varieties of gold pans have their advocates and those who find fault. It probably all comes down to which pan one starts with. Since they don't cost very much, it may be best to purchase two or three types and determine which pan is best for you. The extras may be used by family members and friends or as a "safety pan." A safety pan is placed under the pan being used especially when panning concentrates to catch any gold that may inadvertently slide over the lip of the pan. It may also be used to check panning technique by repanning the safety pan.

The screw drivers, shovel, spoons and brushes etc. are tools that help clean out the crevasses to get out all of the material contained within. Remember, the gold is very dense so it will settle to the bottom of the space. This is why it is necessary to have these tools.

The bucket is handy for carrying and organizing your collection of tools. It also can be used to transport the materials to be panned. Five gallon buckets are very inexpensive or even free.

Sniffer bottles (also called snuffer bottles or sucker bottles) are very handy for removing the gold from your pan. They may usually be purchased wherever gold pans are sold.

The small bottle is for storing the located gold. Almost any small bottle will do so long as it can close tightly and is water tight. A good example of this is a baby food container however, be careful not to drop it! 35 mm film containers work well and don't break.

Glass gold vials are available at prospecting stores and come in a variety of sizes from 2 DWT (pennyweight) to several ounces. They work well for estimating how much gold you have accumulated and for showing off your gold.

Lets review so far:

You have: your tools, time to prospect, you are traveling along a stream which looks unregulated, curves and has what appears to be a good amount of elevation drop, there appears to be a good selection of mineral diversity in the surrounding rocks and you are ready to find gold!

Find a spot in the waterway earlier discussed and imagine how the area looked in the spring flood. Go to an area above the mid-summer waterline and estimate the height of the winter flood level above present water level. Look for rock formations (bedrock) with various sized crevasses or large obstacles that created eddies where the heavy materials fell out of the turbulence of the spring flood.

NOTE- Keep track of the general height above present water level where you are looking. The heavy material may be concentrated at a particular level or a different one. By doing this, the prospector will begin to develop a "feel" for the future location of gold in that area. Now comes the fun, the panning commences! Remove all material from the spot you have chosen and sweep it clean. This includes the live organic material on top (grass, weeds, moss etc.), the material in the area all the way to the bottom. The material on the bedrock and in the cracks are most likely to contain gold. Be very careful to save the dirt attached to the moss and roots. Remember, gold has a much higher density than the normal river material and will seek the lowest level of the area in which you are looking.

Load this material into your pan. Fill it to about 2/3 capacity or to a physically comfortable level. The next step is to perform the panning. This can be better described as separating the materials into layers based on their densities, removing the less dense materials at the top and then extracting the gold. Locate an area in the water where it will be comfortable to do the panning. The water should be flowing but not at the full force of the waterway. A flat rock in slow moving water about a foot deep is ideal. Sitting on the rock is much easier on the knees and back. Summer temperatures may offer a wading technique that will be both easy to perform and refreshing. Fill the remaining space in the pan with water and locate the rim about the level of the water.

Remember, what you are about to perform is a separation of material based on the different material densities, then the removal of the common materials (less dense, on the top) leaving the most dense (on the bottom).

Hold the pan level and agitate it sufficiently to create a homogeneous mixture where all the material seems to be suspended. The key here is all the material must be moving. I stick my finger in the mix as I agitate it to feel if everything is suspended. Almost immediately the organic material will rise to the top surface. As this is being

performed, slow or stop the agitation and in a level position, gently lower the entire pan into the water, 1 or 2 inches below the surface. A gentle circular motion will cause the least dense materials to be carried away by the water. Continue the agitating procedure until all the muddy silt and organic materials are removed. It also is a good idea to sift the entire pan with your fingers to remove large stones and other non-gold items. Be sure to break up and dissolve all clay lumps if any. Not only can they hold gold, they may be sticky and pick up some free gold in your pan. Also, break up any moss clumps and thoroughly clean any grass roots as they sometimes hold a surprising amount of gold. It is easy to know when the low density organic material and silts have been removed. The water is no longer muddy while you are agitating the pan. Continue to perform this technique for a period of time stopping to sift through the mixture and removing the largest stones. As the panning proceeds, the size of the removed stones will become smaller and smaller. How long should this part of the panning last? This is a very difficult question to answer as there are many variables to take into account. If the prospector remembers that the function of the agitation is to separate the materials into their respective densities, the heaviest on the bottom and so on, the time needed to do this will be easier to estimate. A good rule to first start out is to agitate no longer than one minute. Now comes the time to start removing the less dense materials and hopefully, the gold. Lift the pan out of the water just about one to two inches in a level fashion. Start agitating the pan as before and tip the pan to an angle that will allow the most dense materials to collect in the lowest corner of the pan. When you are satisfied that the most dense material is collected there, it is time to remove all the rest of the less dense materials. While the pan is still tipped on the angle, dip it into the water and lift slowly upward. This action will create a small wave. If done correctly, the wave will take with it an amount of the undesired, low density materials on the top. The key here is only the top layer of material is moving. Repeat the wave, taking away the low density material several times. Alternate between the horizontal agitating motion and the tip and wave removal process until roughly 2-5 tablespoons of material remains. Since small gold particles can float on the surface tension if exposed to air for any length of time, it is important to keep the material submerged as much as possible. If you see any black sand or gold during the tip and wave removal process, it is definitely time to go back to the horizontal agitating motion. The black sand or gold will appear along the line between the bottom of the pan and the material.

Do not hesitate to continue to remove the stones which are now large pebbles (at this point, I have always referred to the pebbles as boulders). The process is now almost complete! There should be a small amount of fine material resting in the lower corner of the pan. This material is called concentrates because you have concentrated all the material in your pan down to this small amount. You may notice the presence of a high concentration of a black sand. This is probably magnetite which is a form of iron and other heavy material. The presence of this indicates that you have performed the technique properly as iron is 3 times as dense as the common sand and rocks that make up the majority of the river bed material. Some other things you may notice are old fish hooks, lead sinkers and perhaps mercury. These are all indications that your search is being performed properly. You have successfully separated a small amount of highly dense materials from the stream. It is obvious at this point the importance in the size of the pan. The large pans will allow a significant amount of total material to be panned and the effort may cause your arms to want to fall off. The smaller pans are easier to use but yield a smaller amount of dense materials.

Lets review the panning procedure up to now.

1. Fill pan about 2/3 full with all debris from a small area from the stream side. In the case of cracks or under large items, remember - dense materials filter out first (deepest).
2. Fill the remainder of the pan with water and agitate the mixture to separate the mixture into the materials' respective densities. Any motion will work as long as the mixture of the material and water is homogeneous (moving). Remember to include weeds and grass in the initial material to be panned, the roots commonly pull up material from the very bottom of the crack.
3. Tip the pan to remove the least dense materials and small stones. The most dense materials will collect in the lowest corner of the pan.
4. Locate and remove the gold. This is explained next. Now comes the time to see if the time has paid off with some gold! In your pan you should have about the same amount of water as material (2-5 tablespoons). Remember that any gold will be in the bottom of this small amount of material and at this point will still be hidden. Hold the pan in a horizontally and tip it slowly to make the water run around the bottom outside corner of the pan in a circular motion. As the wave passes over the material left in the bottom of the pan, the force of the water will push a small amount of the material with it when the small wave strikes the amount of dense material. This will expose new material at the very bottom of the sand with each successive pass of the water. The amount of water relative to the amount of material is fairly critical but easy to determine. Too much water will cause all the material to move and too little will not move the material at all. Look closely for when you have reached the bottom most part of that small pile, you should be able to see any gold that you have searched for. This last operation may be performed several

times to make sure that you have searched the most dense materials thoroughly. If you see any small bright yellow pieces of material, it is most likely to be gold. Do not be concerned about Fool's Gold, the color of gold is known to most people. When you see these small fragments, look carefully at the color. The color of gold is very distinctive and is easily identified. Fool's gold, also known as iron pyrite, breaks down and oxidizes quickly in a stream. Gold will remain in its identifiable form forever as gold does not oxidize. The particles get smaller in size however, through time and being washed down stream.

Removal of small particles of gold

This step can be slow and tedious and is best done at home since your time in the field is usually limited. After you have verified the presence of gold in the previous step, you can put the concentrates in a container for later processing in a tub or a large cat litter box. A few drops of a surfactant such as Jet-Dry® (dishwasher additive) will help keep small gold particles from floating.

The removal of larger sized pieces of gold is easily done simply by picking them up. Many times, the size of the gold is so small that this is impossible. When this happens, wet the bottom of your finger and press it against the gold fragment. Lift the finger carefully and dip it in the small bottle filled with water. All small particles can be transported into storage this way. You will be surprised at how the small fragments of gold are easily seen, removed and stored.

Another good method to remove the gold is with the use of a sniffer bottle. It is a plastic bottle with a cone shaped cap. There is a tube protruding out of the cap and extending down into the bottle. The bottle is squeezed and released with the tube under water and near the gold. The gold is sucked into the bottle and because the tube extends into the bottle, squeezing the bottle again will squirt the water but not the gold back into the pan. By the way, when squeezing the bottle, ALWAYS point the tip of the bottle into your pan. Sometimes gold flakes get stuck in the tube and will come out with the water. Once filled with water, the sniffer bottle may be used to move the black sand away from the gold by squeezing it very gently - just enough to move the sand but not move the gold. A third use of the sniffer bottle is to put the gold into a small vial. With gold and water in the bottle, remove the cap, remove the tube and gasket from the cap and replace the cap on the bottle. With the bottle upright, put the vial over the tip, invert the bottle and shake. The gold will drop into the vial. The gold will appear magnified if the vial is full of water. Placing the cap on the vial while both are under water will eliminate air bubbles.

A few parting words

Our nation's waterways are used for a variety of recreational purposes such as fishing, swimming and kyacking as well as prospecting. Please respect others by leaving the area as good or better than you found it. Leave as little evidence of your prospecting as possible by filling in your holes and packing out your (and others) trash. Respect private property and mining claims by not prospecting in these areas unless invited. Some claim owners don't mind if you pan on their claims - It never hurts to ask. A claim is only a right to the minerals on them so you may cross a claim to get to another area. Most prospectors are friendly and helpful but since their time in the field is usually limited, they may not appreciate long conversations or answering many questions. Try not to set up your operations right next to someone else. At least ask if it is alright. Let common sense be your guide.

Well, that's about it. Hope to see you out in the digs.

Good Hunting!!!!

PANNING FOR GOLD AND MAGNETITE

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National Center MS 956
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Level: Elementary school

Anticipated Learning Outcomes

- Students will learn field skills such as making observations under field conditions and watching out for poison ivy.
- Students will see the effects of stream flow on sediments and observe sedimentary structures such as stream bars and islands.
- Students will observe that different sizes of sediment are located in different parts of the stream.
- Students will distinguish between different sizes of sediment.
- Students will recognize that different minerals are different colors.
- Students will estimate and weigh the content of magnetite and nonmagnetite.
- Students will observe crystal shapes of some of the mineral grains.
- Students will discuss why magnets pick up magnetite but not nonmagnetic grains.

Materials Needed: IN FIELD

- Wear long pants and boots or old tennis shoes that can get wet
- Gold pans and pie pans
- Small shovels and big spoons
- A sheet of newspaper for each student or team
- A small magnet for each
- Magnifying lenses for each
- A ziplock plastic bag for each
- Waterproof magic markers

CAUTION: Ask about known allergies and ask permission to spray children against poison ivy or poison oak. Tell children what these plants look like (three leaves; central leaflet has a longer stem; sometimes, the leaves are reddish and glossy; one poison ivy variety climbs trees, and another is on the ground; the big hairy vines seen climbing trees are the other variety.) It has been discovered that the aluminum chlorhydrate in antiperspirants will stop poison ivy rash. Best use is to spray the antiperspirant on legs and rub between fingers. Have children wash their hands when they get back to school, and tell them to wash really well when they get home and to take their clothes off inside out so as not to infect the person who does the laundry.

Materials Needed: AT SCHOOL

- Scale for weighing concentrate
- Metal probe, such as a dull knife, edge of ruler, or dental pick

Procedures

1. Go to a stream that is not moving very fast.
2. Fill the pan not quite full of different sizes of sediment: gravel, sand, and silt.
3. Walk into the stream just until the water comes to the top of their shoes.
4. Face downstream, which is the direction the water flows.
5. Tilt the pan so it faces slightly upstream.

6. Ask students to predict which sediment will wash out first and which will remain. Knead the sediment with your hands to thoroughly soak it and to wash out the clay.
7. Shake the pan a little.
8. Knead and shake, knead and shake, knead and shake, knead and shake to wash out the silt and light (usually white) mineral grains. The light minerals are the ones that come to the surface when you shake the pan. The heavy minerals are the ones that stay on the bottom of the pan.
9. Keep pushing out of the pan all of the rocks, twigs, and light colored minerals. When only heavy minerals (usually the black grains) remain in the pan, pour out the water slowly, and then push the minerals out of the pan onto the newspaper to dry.
10. Let the concentrate dry in the sun for approximately 15 minutes.
11. After the concentrate is dry, put the magnet under the paper, and move all the magnetite away into a separate pile. Does your stream contain magnetite? How much of the concentrate is magnetite? What color is it?
12. Look with the magnifying lens for gold in the minerals that remain behind. If gold is present, it will be as tiny flakes. Is gold present? What color is it? What is the color of the other heavy minerals?
13. Label the plastic bag with the name and the location of the stream, mix the minerals back together again, pour them into the bag, and stick the magnet outside the bag so it is attached to the magnetite inside the bag and does not get lost. Is there enough magnetite in the stream to hold the magnet?
14. Back at school, separate out the magnetite by using the same procedure as step 11 and weigh the magnetic and nonmagnetic fractions. Which is heavier? Look more carefully at the other minerals. How many different colors do you see?
15. Gold is a soft metal, softer than most other metals. How can you test if a mineral is gold? Try a metal probe. Gold has different colors because it mixes with different impurities. Yellow gold is very, very heavy and will be with the gravel. Black gold is very heavy and will be with the sand. White gold is heavy and will be with the silt.

Discussion

Every stream carries a different suite of heavy minerals because streams have different rocks weathering in their watersheds. Besides gold and magnetite, many streams carry the semiprecious minerals zircon (slim, narrow, clear crystals), garnet (usually pink or red, 12-sided crystals), monazite (flat, short, stubby, yellow crystals), and corundum (gray blades; if the blades are red--ruby, if the blades are dark blue--sapphire). Many streams in the United States contain gold, especially in the East and the West. You can check at the library if gold was mined near your city or town.

During the Gold Rush in California and Alaska, prospectors searched for gold by using these same techniques. If there is no readily accessible stream, this exercise can be done in the school yard by using a hose, buckets, or a child's swimming pool. Do not pan sediment over a sink because the sediment will fill the trap. Gold is part of our everyday life. We see it in gold jewelry and in dental fillings. The newspaper lists the daily change in the price of gold.

http://www.beloit.edu/~SEPM/Rocks_and_minerals/panning_for_gold.html