HEADJAM
Think Smart

Instructional Guide

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Think Smart demonstrates how the best decisions usually come from defining the problem, analyzing the options, weighing the risks and benefits -- then proceeding based on the evidence and possible outcomes.

Think Smart Teaching Guide

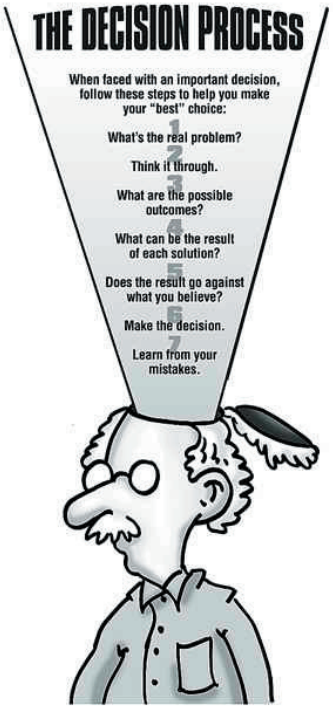
This teaching guide is designed to complement the 20-minute video, Think Smart.

Risk vs. Reward

Decisions, decisions. Every day we have to make numerous choices. Some can affect us the rest of our lives, while others are relatively insignificant. But whatever the type of choices we must make, the fact remains that WE are responsible, and we must weigh the risk versus the reward of our decisions.

Daily Dilemmas

A typical day begins with the simple choice of when to get out of bed. Then we must decide whether to take a shower, a bath, shampoo our hair, or whether to bathe at all. How to wear our hair and what clothes to wear are other decisions to be made. Shall we skip breakfast or eat, and if so, what shall we have? How will we get to school--ride with our parents, ride the school bus, hitch a ride with a friend or walk? All of these choices must be made.



Along with such obvious decisions facing today's young people are the more serious ones that really can affect lives. One such choice could be whether to study for a test, go out with friends or spend the evening talking on the telephone. We all know which choice should be made, but will it?

Choosing what to wear may seem a mundane decision, but not in today's world of gangs that sport certain colors, brands of clothing and shoes and styles of wearing those clothes. To make the wrong choice and wear "gang" paraphernalia could be dangerous. By the same token, many people judge others by the clothes worn--not just whether the clothes are clean and pressed, but whether they are brand name or generic. A student's acceptance at school can depend on such choices.

How active students are in school also can have a big effect on their success. For example, should they participate in extra-curricular activities such as band, vocal music, cheerleading, debate, football or another sport? The time required for practice can drastically cut into time needed for studying or simple free time for relaxation with friends.

Should students have a part-time job? Here again, the time a job requires would directly affect all aspects of after-school and/or weekend activities, including time to do homework or participate in activities.

Whether to use drugs, drink alcohol or smoke cigarettes are big choices that virtually every student must face. Some go along with the crowd just to belong, but the risk of such behavior can be deadly as well as dangerous to reputations where breaking the law is concerned. Using drugs and alcohol involves other decisions, such as whether to get behind the wheel or even to appear in public and risk arrest. The "reward" of a temporary high means nothing in comparison.

Career Choices

Once students have navigated through school toward graduation, there are even more decisions to be made. Some decide to drop out of school to marry, get jobs or have children. Others go on to college, and there are other major decisions to be made. Where to go? What to major in? Whether to live on campus or commute? Who to have as a roommate or have none at all? What classes to take, how many hours to carry and at what times?

Some of these choices can be made only by the students directly affected by them; others can and should be made after much thought and discussion with parents, counselors and/or friends. But no matter what our decisions, the risk vs. the reward of our choices must be considered. And the overwhelming question that must be answered is quite simply, Is it worth it?

Sources

White, Thayer. “Left Brain - Right Brain.” Be Your Own Therapist--Psychology Self Help. 8 Dec., 1999. http://www.psychologyhelp.com/gend134.shtml.

Think Smart Classroom Activity

Left or Right Brain?

Assign your students to find out the main processes of the brain's right and left hemispheres. Then discuss which sex seems to be more right- or left-brain dominant. (The right hemisphere reflects preferences for creativity, risk-taking and emotional, spiritual and intuitive preferences. The left hemisphere reflects preferences for analyzing, solving problems logically, getting facts, organizing, arranging, attention to detail and seeking control of the situation. Research shows that the majority of males are right-brain dominant and the majority of females are left-brain dominant.)

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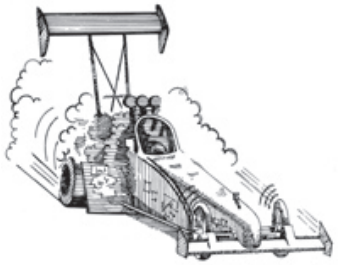
Racing: Split-Second Choices

On life's highway, roadblocks can pop up at any moment. On an actual highway, planning for the future can be even trickier; especially when traveling at speeds of up to 330 mph. Professional drag racers know this all too well. In high-stress situations where a split second can mean the difference between the loser and winner, Pro Heads-Up Class drag racers have to be on their toes at all times.



Winning in drag racing requires a quick mind as well as a fast car.

Anthony Vestal, communications manager for the National Hot Rod Association (NHRA) says, "No matter how much money you spend on technologies, if you don't have a driver with quick reflexes, it's not going to matter."

Quick response is important in drag racing because of reaction time–the time it takes a car to depart once the light turns green. The reaction time of the driver and car can be a factor in who wins, no matter who has the faster clock time. That's because the race is judged on the basis of which car can cover the track faster from the time the green light flashes. Vestal says the clock time often causes confusion among spectators at drag races when the first place award goes to someone who had a slower elapsed time.

Time Out

Yes, it is possible to have a slower time and still win. For example, at the finish line, one car might have a time of 4.60 seconds and another, 4.58 seconds. The car posting 4.58 seconds is the winner, right? Well, not necessarily. Determining the winner of a drag race can become confusing. This is where mathematics comes in.

Younger racers participating in the Junior National Hot Rod Assoc. race at lower speeds over less distance.

The clock time actually can be called the elapsed time or the amount of time since the car left the starting line. But how long did the car sit at the starting line? The car with the faster time of 4.58 seconds might have sat at the green light longer.

The perfect reaction time is .400 seconds, whereas the average is .500, Vestal says. Any reaction time at .399 or below is called a red light. Therefore, it is the goal of drag racers to have a reaction time between .400 and .500 seconds. (See Racing and Placing Activity)

Front-Seat Science

Drag racers in the Pro Heads-Up Class compete on quarter-mile stretches, Vestal says, and the current record time is 4.486 seconds. In order to cover the area, which is about the length of six football fields, the car had to reach 330 mph. To make a car go that fast, science must take a front seat.

The cars are fueled by a mixture of nitromethane and alcohol. Oxygen is sucked through the super charger and fed to the engine. The pistons use the fuel to create mini explosions, giving the car the 6000 horsepower needed to reach such high speeds so fast.

Safety of drivers is top priority at drag racing competitions.

Determining just the right mixture for a car's fuel involves several factors. That's why each racing team has its own formulas for various weather conditions. This particular NHRA class has about 24 events all over the country. For optimum performance, the fuel formula must compensate for climate, weather conditions and altitude of the race location.

While race teams have traditionally kept notebooks with all their top-secret formulas, Vestal says many of the teams now have the information stored on computers. This allows them to get a print out, and plan more efficiently for the race.

Vestal says all the same math and science principles apply to the Junior National Hot Rod Association, although the younger racers travel at slower speeds, usually 40-50 mph, and race a shorter distance, 1/8-mile. For additional information about the JNHRA, log onto www.nhra.com/junior/YouCanRace/index.html.

Classroom Discussion...

1. Drag racers rely heavily on math and science to win races. How does that compare to other sports?

2. What type of climate and weather conditions would be best for drag racing cars?

Safety Research

Whether traveling at 330 mph on a racetrack or 75 mph on a freeway, staying alert is a must. While the average high school student will never set foot in a drag racing car, day-to-day driving on normal roads and highways has plenty of risks.

The National Highway Traffic Safety Administration (NHTSA) tries to lessen these risks through crash-avoidance research and public-awareness campaigns.

One such project is the Automated Collision Notification System. The goal of this project is to create and test a "Mayday" system that would detect a crash and automatically alert emergency services for help. The objective is to decrease emergency response time by transmitting the crash location and severity data. This system could be especially helpful in rural areas where there are often large time lapses between the time of the crash and the victim's arrival at a hospital.

Another NHTSA project is the National Advanced Driving Simulator (NADS), a joint venture with the University of Iowa. The NADS allows for crash-avoidance research without exposing the driver to physical harm. It is designed to give the sensation of driving on a real highway. The driver has a realistic field of view, including rearview mirror images. The driving scene is three-dimensional and photorealistic and includes an auditory system that compensates for every imaginable traffic sound.

While drivers are traveling along the simulated highways and intersections in various roadway weather environments, valuable data is collected. This data is used to understand better why people have crashes. The purpose is to develop strategies that will reduce traffic accidents, injuries and fatalities.

Classroom Discussion...

1. Would the Automated Collision Notification System be helpful in the area where you live? Why or why not?

2. Can science ever really create an accurate portrayal of driving conditions in a simulated lab?

Safety First

In the future, everyone may drive smart cars that know how to avoid crashes. As for now, there are several driving tips to help avoid crashes.

When driving long distances drivers should be aware of changing traffic patterns, road and weather conditions and becoming tired and sleepy. Traffic rules should be obeyed and drivers must be prepared to adjust for driving errors of others. Driving speed should compensate for road and weather conditions as well as posted speed limits. The two most commonly heard driving rules, don't drink and drive and always buckle up, are especially important in avoiding injury or fatality. Unlike drag racing, risk management in the real world is not a matter of winning; it's a matter of staying alive.

Classroom Discussion...

What do you do to help avoid risks while driving or riding in a vehicle with friends?

Sources

"Crash Avoidance Research." National Highway Traffic Safety Administration, U.S. Department of Transportation. 17 May 1999.

National Hot Rod Association Online. 1999. http://www.nhra.com

National Hot Rod Association Jr. Drag Racing League. 1999. http://www.nhra.com/junior/YouCanRace/index.html

Think Smart Classroom Activity

Racing and Placing

Problem 1: Car A and Car B are in position at the starting line waiting for the go ahead. When the green light flashes, the Car A driver has a reaction time of .450 seconds. Car B's driver has a reaction time of .470 seconds. As the two cars pass the finish line, the clock shows a time of 4.37 seconds for Car A and 4.35 seconds for Car B. Who wins the race?

Answer: It's a tie. (.450 + 4.37 = 4.82 and .470 + 4.35 = 4.82)

Problem 2: Following is a list of reaction times and clock (elapsed) times. Use the list to determine the race placings.

Red car: reaction time: .490, clock time: 4.56
Blue car: reaction time: .485, clock time: 4.58
Yellow car: reaction time: .482, clock time: 4.60
Green car: reaction time: .488, clock time: 4.55
White car: reaction time: .499, clock time: 4.54

Answer: First place: green; second place: white; third place: blue; fourth place: red; fifth place: yellow.

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Filmmaking & Creative Descisions

A night at the movies is one of the great American pastimes. We line up at the box office, get a large tub of popcorn and a cold drink, and if it's a particularly exciting feature, maybe a box of candy. After finding a good seat and watching the coming attractions and enticing ads, it's time to settle back and be entertained for a couple of hours.

Once the lights go down and the movie starts, we're through with the decision-making process for awhile. After all, we had to choose which movie to see, which time was best, what snacks to consume and where to sit. But the film flickering up there on the screen represents a whole world of decisions foreign to most of us.

Creating a motion picture or a similar project like a video, documentary or commercial starts with the idea. What does the filmmaker want to say? What emotions will he or she convey? Will the film be dramatic or funny? Realistic or fantastic? Take place in the past, present or future?

Shooting is just one step in a multi-phase process of producing a film or video.

After the intangible elements are chosen, the practical side has to be considered, starting with the bottom line: how much is this going to cost? The size and type of the project will be the main considerations. Is it a feature-length film or a 30-second commercial shot on videotape? The talent can be a cast of one or thousands - how much money will that require? Will the film be shot indoors in a studio or outside on location? The list of variables can be lengthy. Will the budget support the vision?

Mechanics of Making a Dream

A film subject can be events from any time period; people - from an individual to a family to a large group; a portrayal of social conditions, the influence of an idea or philosophy or just a mood. The events can be fictional or based on a real occurrence - or even a mix of the two. The subject can be treated any number of ways - the style can be romantic, analytical, subjective or objective. It may be realistic, fantastic, serious or humorous or an interpretation of the filmmaker's viewpoint.

Editing a film or video involves as many, if not more, decisions than the scripting and shooting phases.

While some motion-picture stories are original, written specifically for the film, others are adapted from stage and television plays or series, novels, short stories, biographies and other published materials. A movie studio or filmmaker buys the right to adapt or use these sources for the screen. Some studios even use scouts or readers to search for stories that might be used as a basis for a movie. The hunt for new scripts and ideas can be intense, considering the number of feature films, television movies, original cable network movies and direct-to-video productions that are made each year.

Taking a story through the process of adaptation for a script is usually done by a screenwriter or group of screenwriters. Watch the credits at the end of the next movie you see - several people can be acknowledged in a number of ways - "written by," "from an original story by," "additional dialogue by," etc. As with many parts of the creative process, sometimes there are disagreements. More than once a movie has made it to the screen only to have the writer see his or her name pulled from the project over "creative differences."

There are also the daring few who don't use a script but improvise as they go–usually an independent filmmaker who has a lot less of a large studio's money to consider. Check out the 1999 surprise hit, "The Blair Witch Project." The filmmakers left their cast alone out in the woods with a camera and some story guidelines. Most of the action was spontaneous. The budget was tiny compared to many mainline studio productions, so the box office profit was considerable.

Calling the Shots

Some of the best-known names in movie making have been and are the directors. An individual who puts a strong personal stamp on his/her films can become identified with

a particular genre or type of movie. A prime example is Alfred Hitchcock, whose suspenseful films with unusual camera angles have been emulated and imitated for many years.

Traditionally, directors have almost total control of the production of a film, from translating the material in the script, deciding the shots to use, getting the desired performance from the actors involved and overseeing the final "cut." Some directors also write their own scripts, making the finished film even more their personal vision. (A well-known recent example is the huge hit, "Titanic," written primarily by director James Cameron.)

The director must be able to envision the film as a finished whole, and must be able to make the sometimes-tough decisions needed to achieve that goal. He/she's the person who's going to get a lot of credit if the movie is a hit and a lot of the blame if it goes down in flames at the box office. And if the project is financed by a studio or group of investors, the director usually will have to answer for cost overruns.

With a film for television or theatrical release averaging 90 minutes to 2 hours and with film using 24 frames per second, a major cost can be the film stock and processing. A director has to aim for a shooting ratio that will give him/her enough choices in the editing room to make the desired film, and at the same time, keep costs under control. Shooting ratios can average as much as 35:1 (35 feet of film shot for each foot used in the movie).

Much of the film used is to "cover" a scene or shoot from several different angles. The next time you're watching a movie, notice how many different angles are used in one scene. What looks like a simple scene with two actors can involve a wide shot with both characters in the frame, a close-up of one actor, a close-up of the other actor, an over-the-shoulder shot of the first actor, the same for the other actor and so on. Which angles will appear in the movie is a decision the director and the film editor will make in the cutting room. (This leads many actors to complain that their best work ended up on the floor there.)

The director and the editor will make a rough cut of the movie to see how it looks as a whole. This version usually doesn't have sound or visual effects or a sound track but is a work in progress. During this process, a director can change the order of scenes to help the flow of the movie, or even delete whole scenes that just don't work as planned. The final product, with effects and music added, can differ a little or a lot from the shooting script.

Although the director exercises a lot of control over the look and content of a film, he/she may have to bow to some pressure to make a movie more for commercial success than artistic acclaim. Take a look around a video store and you'll often see a movie reissued as the "director's cut." The director most likely had this film in mind before other considerations came into play. If too many of a director's films don't make money, he/she may wind up unemployed. The marriage of esthetic ideals and financial considerations can be a rocky relationship at times.

So the next time you're leaning back, popcorn and soda in hand, watching the story unfold on the screen, have a little more appreciation for all of the decisions that had to made for that epic to appear. Notice the names on the credits, the angles and shots the director chose, the realistic or fantastical or romantic or funny feel of the movie. But mainly enjoy -- that's the reason all those decisions were made in the first place.

Think Smart Classroom Activity

Fun with Films

1. Mathematics can be an important element in making a movie. There are 24 frames per second of film, and a film is typically 90 minutes to 2 hours long. How many frames will be used in a film that is 90 minutes? 2 hours long?

If film stock costs 50 cents per foot, and processing costs are 25 cents per foot, how much will it cost to buy and process 3,000 feet of film?

2. Divide a class into groups. Assign one group to plan making a dramatic film, another a comedy, another an action film. Each group is to create a basic story from beginning to end with appropriate plotting. Have the groups storyboard (draw in visual format) at least a portion of the sequence of the film. They also will have to decide the angles and shots they would use. Let each group present its pre-production work.

3. Choose a film the class can see at school and have them take note of the number of shots in a scene, the cutting of action scenes, angles the director uses to convey the feeling of the film, etc. Also note the credits - who is the screenwriter (or screenwriters)? Is the editor credited? If possible, watch two movies by the same director to see if he/she has a distinctive style. Or find a film remade several years apart by different directors and watch both versions. Compare and contrast the styles.

4. Assign each student (or class group) to find a book, short story or poem that they think could be made into a movie and give it a script treatment. Discuss the problems they might encounter making a film from their chosen work.

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Planning an Event? Think Smart!

Organizing any special event, even a small birthday party, requires planning and making many decisions. But how would you like to be responsible for orchestrating an event for more than 200 people? That's just what the journalism department does each spring at Eastern Oklahoma State College in Wilburton for Media Day, an annual event the college sponsors for high school journalism students.

"Media Day takes collaboration, imagination and determination," says Barbara Bashore, head of Eastern's journalism department. "The idea behind the event is two-fold: (1) It's a public relations/recruitment tool to entice high school students to attend the college, and (2) it's a learning tool for our college students who assist with planning and implementation of the event."

Let the Decisions Begin

It all begins in Eastern's fall public relations class where students participate in brainstorming sessions to plan Media Day. The annual event consists of mini-sessions presented by professional journalists, individual and overall competition for newspaper and yearbook staffs, and an awards luncheon.

With a budget of $2,500, the students determine when Media Day will be held, what journalism sessions will be offered, who will be asked to present the sessions, what the awards luncheon menu will be, what kinds of awards will be presented, and what will be given as door prizes. They also are responsible for creating a program, a flier and a letter to be mailed to about 100 Oklahoma high schools, requesting entries and attendance.

Details, Details

As newspaper entries are received, they are separated according to school size (5A to B). Professional journalists are hired to do the judging and are paid $50 per category – news reporting, feature writing, editorial writing, personal columns, critical reviews, sports writing, photography, cartoons, front page layout and inside page layout.

Eastern journalism students are responsible for separating the entries by category and school size, making copies of judging forms to accompany each, and putting them in large envelopes to be taken to the judges.

Once judging is complete, a list of first-place individual winners is given to the college scholarship office where certificates are made, entitling the students to a $600 tuition scholarship to Eastern. College students prepare certificates on a computer for first, second and third places and honorable mention. The same process is used for yearbook winners. Large trophies are presented to the high school publications that win first for over-all excellence.

Final Preparations

The day before Media Day, students make copies of programs, put the correct number of luncheon tickets in envelopes, and create a registration sheet that lists reservations for each high school. They also get tablecloths and a centerpiece from the college catering service to use in the sponsors' lounge.

On the day of the event, Eastern students are assigned to assist speakers who are professionals in newspaper, radio, television, novel writing, creative writing, public relations, photography, advertising, movies and/or yearbook. Speakers receive a $50 honorarium and are invited to the awards luncheon where they are given special recognition.

A few students also are hosts/hostesses in the sponsors' lounge that offers pastries, coffee and soft drinks and has the trophies on display. Others are responsible for manning

the registration desk, providing directions to the sessions, and distributing tickets for the luncheon as each high school group arrives.

Whew! The Awards Luncheon

After the mini-sessions are over, Eastern students take the trophies, critiqued entries and lists of winners to the student union ballroom for the awards ceremony. At the doors to the ballroom, they take tickets and return stubs to be used in drawings for door prizes. After food is served and door prizes are given, the students are in charge of announcing winners and handing out certificates and trophies.

At the conclusion of the luncheon, entries are returned and photographs are taken of the winning staffs to be sent to hometown newspapers. Finally, Eastern students gather materials and return them to the building where Media Day began. The next day is spent reviewing the event and determining whether changes should be made for the next year.

Then it all begins again.

Media Day Notes

Approximately 200 high school journalism students and sponsors attend the Eastern Oklahoma State College Media Day each year.

“Eastern students get cost information for about three different meals from the college catering office, and we pick one that costs no more than $5 per person,” says Bashore. “We then charge $7 per person to those attending Media Day. With that money, we pay for the meals, the trophies (four at $20 each) which we order from a local trophy shop, and put any leftover funds into the Press Club account so the college students can have an end-of-the-year awards dinner of their own.

“Money to pay the speakers $50 each comes out of the Media Day director’s journalism budget from the college. Some years, but not always, we can afford to pay judges $25 per category depending on the number of those attending,” Bashore says.

Certificates are printed on resume paper purchased through the journalism budget from the college bookstore, using computers in the journalism lab. Every winner receives a certificate, whether it is for newspaper or yearbook, first place or honorable mention.

College maintenance workers set up the awards luncheon tables and chairs in the ballroom, and the college audio-visual director sets up a podium with sound system. Orders for the catered meals must be submitted to food services within a week of the banquet. College students serve the meals.

According to Bashore, Eastern’s Media Day has always been self-supporting. The next one is slated for March 12, 2000.

Think Smart Classroom Activity

Party!
Let's Make Plans

1. Have your students plan a "pretend" party. Begin by making a list of the decisions to be made. What kind of party will it be (this will influence all other decisions)? A picnic, dance, dinner, or costume party? What's the budget and how will it be allocated? Do they want to appoint a coordinator and committees to handle different aspects of the party? When, where, and at what time for the party? Is the facility chosen available on that date and time? How many guests? How will the guests be invited? What will be served as refreshments? What quantity of refreshments will be needed to serve the attendees? How are the refreshments served? Who cleans up afterwards? As the party plans unfold, make certain the pretend expenses stay within the budget.

At the conclusion of the planning session, ask the class to think about what goes into planning a "simple" birthday party for themselves. Do they better understand why Mom and/or Dad may have seemed reluctant about hosting such an event? How much did the students participate in planning and implementing the last party at their home?

2. Photocopy the Media Day article and distribute it to your class. As you read the article with them, make note on the chalkboard of how many decisions to plan the event are mentioned in the article.

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Extreme Sports

The crowd holds its breath as a helmet-clad skateboarder flies off an 8-foot ledge and lands on a 2-inch metal handrail. He skids along the handrail, bypassing three flights of stairs, and leaps over a row of hedges nearly as tall as himself. At the end of the strenuous course, the skateboarder pauses for a moment to reflect on his run. Sure, he'd wowed the crowd, but was it enough for a win. Had he skated fast enough and jumped high enough? Should he have taken more risks?

Gone are the days when skateboarding was a simple glide down a flat sidewalk and the only obstacle was getting past the neighbor's dog. Today's skateboarders stretch physics to the limit and thrive on the thrill of risk taking. While some would question their sanity, participating in seemingly dangerous sports is a growing trend.

Extreme sports and those who seek risks were the focus of a Sept. 6, 1999, Time magazine cover story. The article suggested that Generations X and Y have fewer real risks to face and; therefore, some feel the need to live out challenges through risky behavior. While previous generations were burdened with global wars and the threat of world destruction, recent generations have lived through a relatively peaceful era.

For whatever reason, extreme sports are getting more attention that ever. In 1995 ESPN jumped on the bandwagon with the first Extreme Games, now known as simply "X Games." The televised event is broken into two annual bouts: the Winter X Games and the Summer X Games. Both seasons have specific sports, just like the Olympics. Only, these sports would never fly at the Olympics. Some of the events include aggressive in-line skating, bicycle stunt riding, snowboarding, skysurfing, street luge, ice climbing and, of course, skateboarding.

Skateboarding Tricks

Although skateboards have been around for at least half a century, the style of skateboarding has evolved. In the early 1970s, the complexity of skateboarding escalated with the invention of a new type of wheel that allowed for more traction, speed and smoothness. As skateboarders began executing a wider range of maneuvers and tricks, insurance companies were forced to raise rates and many skateparks had to close. Skateboarders were forced onto the streets to practice and had to build their own plywood ramps. Thus, street skating was born.

Among the tricks developed during this era is one that has become a skateboarding fundamental and the basis for other, more complicated maneuvers. The "ollie" was invented in the late 1970s by Alan "Ollie" Gelfand. Simply put, the ollie is a jumping technique that allows skaters to hop over obstacles. While in midair, the board appears to stick to the skater's feet. Many people assume that the skater's shoes are somehow attached to the board. They're not. It's just a matter of science.

"Ollie Science"

Three forces act on a skater while performing an ollie: The skater's weight, the force of gravity on the board, and the force of the ground pushing up on the skateboard. These three forces balance out to zero, which means the skater rolls along at a constant speed unless another force is added.

To add the fourth force, the skater crouches down, creating a low center of gravity and then accelerates upward by quickly straightening his legs and throwing his arms in the air. It is important that the rear foot exerts a much greater force on the tail of the skateboard than the front foot exerts on the nose. As the tail of the board slams into the ground, the ground responds with a force that causes the board to bounce upward.

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Skateboarding has achieved new levels of complexity since the early 1970s.

Newton's First Rule of Motion

Newton's First Law of Motion states that an object in motion will stay in motion and an object at rest will stay at rest unless the object is acted upon by an outside force. Discuss the effects of this law in skateboarding and other extreme sports. For example, what outside forces are at play while doing an "ollie?"

ACTION

REACTION

Aerodynamics plays a huge role in bicycling speed.

When the board is in the air, the skater slides his front foot forward. The friction between the bottom of the skater's shoe and the rough surface of the board drags the board upward even higher. Next, the front foot of the board is pushed down, which causes the back of the board to rise. At this point, the skateboard appears to be stuck to the rider's feet. As the force of gravity takes over, the skater and board begin to descend, and the skater bends his knees to cushion the impact of the ground.

Classroom Discussion...

1. Why is it necessary for the skater to crouch before jumping?
2. A type of sandpaper called grip tape often is affixed to the top of skateboards. What affect would grip tape have on an ollie?

Street Luge

If hanging in midair with only a skateboard for comfort sounds risky, imagine traveling 65 miles per hour downhill. Still not dangerous enough? What about lying down on a skateboard-like contraption with no brakes?

That is the premise of street luge. Like most extreme sports, street luge evolved from existing popular sports. It is a combination of ice luge and skateboarding. The luges are aluminum frames with steel seats where the rider reclines on his back. Four large urethane wheels provide the road traction. Steering is done by shifting body weight from side to side.

The racecourse normally is lined with bales of hay and drops hundreds of feet in 6/10 of a mile. That's pretty steep. For safety, the riders wear full-body leather suits, treadless shoes, motorcycle-like helmets, and ultra-padded deerskin gloves. The gloves are padded with two layers of deerskin, one layer of kevlar and one layer of plastic. The special helmets are fitted with serious neck support, and knee and elbow pads are always worn. Although extreme sports are risky by nature, most extreme athletes take safety seriously.

Snowboarding

Snowboarding is a combination and modification of existing popular sports. Snowboarding can be compared visually to skateboarding or surfing, only it's done on snow. The rider stands on the board with one foot forward and facing one side of the board. The feet are attached to the board via high-back or plate bindings. The object is to make it from the top of a mountain to the bottom using only the snowboard.

Mountain Biking

Some extreme sports buck the flat surfaces of pre-designed racecourses and opt for a more natural terrain. In mountain biking, the rider has to be constantly aware of the obstacles ahead. When speeding downhill in a natural setting, the rider's balance is extremely vulnerable to any stone or branch that meets the tires of the bike.

Most mountain bikes have wide tires, while road bikes have thin tires. Thin tires are better for smooth surfaces because there is less contact with the road, which means less friction. But on dirt trails, thin tires tend to sink into the dirt. Tires on most mountain bikes are made of natural rubber and have rough treads. This allows the tire to grip the dirt trail better and float over the rough surfaces.

Aerodynamics plays a huge role in bicycling speed. Wind resistance provides the greatest obstacle for bicyclists. The easiest way to overcome wind resistance is to become more streamlined. That's why bike racers usually keep their heads bent close to the handlebars.

In road racing, bicyclists often travel in lines to improve performance, as do birds. This is known as drafting. As the bicycle moves, a low-pressure area is created directly behind the rider. If a second rider moves into the area, the low pressure helps move the bicycle forward. Surprisingly, the lead bicyclist's performance also improves when someone fills in the low-pressure area. However, the lead bicyclist must still expend more energy. The shorter the distance between the two bikes, the more effective is the drafting.

Beyond Extreme

Several sports go beyond what some call extreme. Jumping from an aircraft at 10,000 or more feet puts skydiving in a different category. Some might call it ultra extreme. Others call it just plain crazy.

After jumping from an airplane, skydivers accelerate to around 120 miles in just a few seconds. The free fall lasts about 40 to 60 seconds and the parachute deploys at an altitude of approximately 5000 feet. Once the parachute opens there is a calm 4- to 10-minute ride to the ground.

BASE-Jumping

BASE-jumping is a relatively new sport. Yet, it has a relatively high fatality rate. BASE is an acronym for building, antenna, span (bridge) and earth (cliffs). Jumpers leap from stationery objects and deploy a parachute. Unlike skydiving, no aircraft is involved.

In its 18-year history, BASE-jumping has taken the lives of nearly 50 people. In October 1999, a 60-year old parachutist plunged to her death when her parachute failed to open. Ironically, the woman was jumping in protest of rules banning BASE-jumping off El Capitan in Yosemite National Park. The jump-gone-wrong was a sad reminder that extreme sports sometimes can become too extreme.

Although extreme sports can be a rush for some, safety precautions should not be avoided merely to make the sport more dangerous. Anyone who chooses to participate in an extreme sport should first consult a professional to determine what pre-training and proper equipment are needed for the sport.

Classroom Discussion...

1. Other than sports, what other types of risky behavior do you observe in society today?
2. To what do you attribute the rise in popularity of extreme sports?
3. What risk management steps could be taken to make an extreme sport safer?

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Think Smart Classroom Activity

Extreme Quiz

Divide students into small groups. Have each group develop an extreme sport using combinations of existing sports. One person in each group should be the designated note-taker.

For their new sport each group should list the following: name of the sport and explanation of its popular sport relatives, game rules, mathematical representation of scoring (how it will be scored), special equipment that will be used, and safety precautions.

Think Smart Classroom Activity

Presidential Skydiving

Problem: Former President George Bush makes known his love of skydiving. In 1999, Bush celebrated his 75th birthday with a skydive. Another jump came in 1997 in the desert of Arizona. His first skydive was a bailout from a plummeting airplane when Bush was in the military in World War II. If on one of his jumps Bush fell at a rate of 1,000 feet every 5.6 seconds, how many miles per hour would he be traveling?

Answer: 95 mph using the following method:

1. Convert 1,000 feet to miles by dividing by 5,280 feet/mile (0.19 mile).
2. Convert 5.6 seconds to hours by dividing by 3600 seconds/hour (0.002 hr.).
3. Divide 0.19 mile by 0.002 hr. (95 mph).