Senior 4 ELA: ESL for Academic Success

Module
Handouts

Module 4
Point-form Notes Organizer:
Baby Boomers’ Babies Have Bad Habits

Intro:
What does the title of the video clip suggest to you? ____________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

What do you think the following expressions and idioms mean?
  baby boomers: ________________________________________________________________
  put up a stink: _________________________________________________________________
  red flag: ________________________________________________________________

Can you think of any bad habits that may be discussed in this clip? __________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

Through:
Carefully read over all the questions below before you watch the clip. Try to figure out what might go in the
blanks. As you watch the clip, record information to fill in the blanks and answer the questions.
1. Kids put up a stink. Why? __________________________________________________________________

2. Kids in the mall:
   Play ____________________________________________________________________________________  
   Don’t _____________________________ except in _____________________________________________  

3. Kids with parents who smoke ______________________________________________________________

4. This adds up to failing on ___________________________________________________________________  

5. Statistics showed the following about baby boomers’ children:
   a) Nutrition:
      ____________________________ do not get enough fruit and ____________________________  
      ____________________________ do not get enough ____________________________ and cereals.  
   b) Physical activity:
      ____________________________ do not get enough.  
   c) Second-hand smoke:
      ____________________________ are exposed.

(continued)
Point-form Notes Organizer: Baby Boomers’ Babies Have Bad Habits (continued)

6. Baby boomers’ children do not have healthy habits because of their ________________________________.

7. Baby boomers:
   a) _______________________________ badly
   b) _________________________________ T.V.

8. Obesity: ___________________________ of Canadians at the time of the story were overweight.

9. It is _____________________________ that has kids ______________________________ and parents ________________________________.

10. Habits formed in childhood are ______________________________________________________________.

11. Unless parents ___________ their kids ________________________________ , thousands of children will grow and die of ________________________________.

Beyond:
Write a personal response to this video clip. You may compare the situation in Canada to that in your country of origin, or you may discuss how this video clip applies to you, personally.

___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
<table>
<thead>
<tr>
<th>I. Mrs. Seal</th>
<th>Intro:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Why did you choose Tae Kwon Do?</td>
</tr>
<tr>
<td></td>
<td>Do you enjoy teaching?</td>
</tr>
<tr>
<td></td>
<td>What do you say to people who think seniors are slow and helpless?</td>
</tr>
<tr>
<td></td>
<td>So, will you tell us your age?</td>
</tr>
<tr>
<td></td>
<td>Do you feel more secure?</td>
</tr>
<tr>
<td></td>
<td>Conclusion:</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>II. School Volunteers</th>
<th>Intro:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>So, how does your problem work?</td>
</tr>
<tr>
<td>First speaker:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>So what are you guys doing here today?</td>
</tr>
<tr>
<td></td>
<td>So, will you tell us your age?</td>
</tr>
<tr>
<td></td>
<td>What’s your favourite part of this?</td>
</tr>
<tr>
<td>Conclusion:</td>
<td></td>
</tr>
</tbody>
</table>
### Graphic Organizer for Listening: 
*Seniors Are Cool!* (continued)

<table>
<thead>
<tr>
<th>III. Mr. Robertson</th>
<th>Intro:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Robertson speaks:</td>
<td></td>
</tr>
<tr>
<td>How long is your average snowshoe trip?</td>
<td></td>
</tr>
<tr>
<td>What ages of people come on these hikes?</td>
<td></td>
</tr>
<tr>
<td>Mr. Robertson, why do you snowshoe?</td>
<td></td>
</tr>
<tr>
<td>Mr. Robertson, how do you stay in shape?</td>
<td></td>
</tr>
<tr>
<td>Conclusion:</td>
<td></td>
</tr>
<tr>
<td>IV. i. Mr. Strutwa: Restoring cars</td>
<td>Intro:</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Why did you decide to restore old cars after you retired?</td>
<td></td>
</tr>
<tr>
<td>What’s your favourite type of car to work on?</td>
<td></td>
</tr>
<tr>
<td>What kind of car is this one here?</td>
<td></td>
</tr>
<tr>
<td>Is that a real Ferrari?</td>
<td></td>
</tr>
<tr>
<td>How long have you been restoring cars?</td>
<td></td>
</tr>
<tr>
<td>IV. ii: Mr. Strutwa: Keeping fit</td>
<td>Intro:</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Mr. Strutwa, how long have you been working out?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>What does your average day look like?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>What would you say to younger people wanting to start an exercise program?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>What’s the secret of your success?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Handout 4-3

Module 4: Issues in Health

Topic 2

NewsHour Extra for Students: The Big Question

By Heather Jones, 17, Texas

The Human Genome Project has opened up new opportunities for mankind. What will the future hold?

Perhaps someday people will never need glasses because genes from eagles’ eyes have been combined with their parents’ DNA.

Wings! We could all have wings! Beautiful feathered wings that would be utterly useless because of our body weights, but still, it’d be awesome!

There could be immunity to disease or viruses, such as anthrax, AIDS, or influenza. But at the same time, there is the possibility for abuse. As in any realm of science, progress brings not only the ability to do good, but also the ability to do ill.

A Better Human?

With the information scientists are gathering from their mapping of the genome, we can make the same substances our bodies make. A case in point is insulin, which is grown by combining the piece of genome which codes for human insulin with a chunk of bacteria. The bacteria doesn’t recognize that anything has changed, it merely starts pumping out insulin, which scientists can then use to save the lives of millions who suffer from diabetes.

Clearly, there are many benefits to be derived from such technology, from medicines to the enhancement of our natural abilities.

But what happens when obsessive parents try to genetically engineer their kid to be the ultimate basketball player?

Is this fair to the child? What if the child doesn’t want to be eight feet tall? What if the child’s true calling in life is to be a jockey, only they can’t, because their parents messed with their genes?

And how would this overly tall child be accepted among his peers? As anyone who’s ever been made fun of well knows, being different from the other students means your school life is straight from heck.

Before we can answer these questions, we must ask ourselves who would actually use this technology? Certainly it’s not going to be the average Joe and Josephine who’ll be able to afford something as expensive as a designer baby. It will probably be the rich, the powerful, the well connected, and a gaggle of scientists.

But more than that, mapping the genome could place stress on not only the social structure but the foundations of democracy itself. Our country was founded on a premise that “all men are created equal.” But what happens when all men are not created equal?

Specifically, when the rich and powerful are created superior to the average and the poor?
NewsHour Extra for Students: The Big Question (continued)

The Genes Made Me Do It

Another question has to do with the use of genetic information. Let’s say that someone has a gene that makes them susceptible to cancer if they’re exposed to chlorine. Can their insurance company refuse to cover them if they go swimming? Can their company, since they are providing them insurance, decree that they may not go swimming?

If a student is found to have a violence gene, can the schools refuse to enroll them even if the student has never acted out? Could someone be denied a job because they’re considered a genetic “threat”? Could a determination that someone has the gene for “violent” (or even “generous”) be accepted as character evidence in a court of law?

Will a person who’s been told all their life they have “bad” genes, which make you selfish and violent, eventually become selfish and violent?

We’re still unclear about how much of our personalities are determined by genes, and how much by environment. Aside from the whole nature vs. nurture debate, there is also the question of free will vs. determinism, a philosophical concept much like fate and destiny.

People who believe their actions are dictated entirely by their genes might take even less responsibility for their actions. A man or woman who becomes angry while in heavy traffic and ends up shooting a rubber-necker for driving too slowly may argue it isn’t their fault because they have genes that make them snap very easily, and they can’t be held responsible for their actions.

Genetic screening can, of course, be useful. Parents who carry recessive genes for deadly biological diseases such as sickle-cell anemia or Tay-Sach disease can find out their children will be affected. With some sort of gene replacement therapy, the defective genes that would normally cause the child to die early could be replaced with normal, healthy ones so that the parents could have a healthy child.

The government and military could also use the new information for either good or bad. They could develop new and better ways to resist biological warfare attacks. On the other hand, however, they could develop new and “better” biological weapons, specially tailored to attack certain parts of the human system. Perhaps they could develop a weapon that would render enemy soldiers blind and deaf. Will the good here outweigh the bad?

The Map of Uncertainty

The study of genetics, much like other scientific endeavours, has both good points and bad. On one hand, great strides are being made in understanding how the human body functions. We could find out where we came from and the migration patterns of ancient man.

Children that otherwise might have been born with rare and deadly diseases may be born healthy and happy.

But at the same time, ethical and philosophical questions must and will be addressed. A psychologically dangerous attempt at “normalization” could result as people begin to view their differences as unwanted diseases or defects that must be removed from the genetic structure of their children.

In the end, we can only look to the future with wide eyes, hopefully ready to accept the good and to fight against the evil.
Sleep Quotations

1. “...to sleep, perchance to dream...”
   —Shakespeare, Hamlet, Act III, Scene 1
2. The best bridge between despair and hope is a good night’s sleep.
   —Anonymous
3. You know I can’t sleep, I can’t stop my brain
   You know it’s three weeks, I’m going insane.
   You know I’d give you everything I’ve
   got for a little peace of mind.
   —Beatles, “I’m so Tired”
4. The woods are lovely dark and deep,
   But I have promises to keep,
   And miles to go before I sleep,
   And miles to go before I sleep.
   —Robert Frost
5. It is a common experience that a problem difficult at night is resolved in the
   morning after the committee of sleep has worked on it.
   —John Steinbeck
6. When action grows unprofitable, gather information; when information grows
   unprofitable, sleep.
   —Ursula K. LeGuin
7. Sleep is better than medicine.
   —Proverb
8. There is a time for many words, and there is also a time for sleep.
   —Homer, (800 BC–700 BC), The Odyssey
9. To achieve the impossible dream, try going to sleep.
   —Joan Klempner
10. [Sleep is] the golden chain that ties health and our bodies together.
    —Thomas Dekker (1572 - 1632)
11. “I reached for sleep and drew it round me
    like a blanket muffling pain and thought together
    in the merciful dark.”
    —Mary Stewart
12. “Methought I heard a voice cry ‘Sleep no more!
    Macbeth does murder sleep,’ the innocent sleep,
    Sleep that knits up the ravell’d sleave of care,
    The death of each day’s life, sore labour’s bath,
    Balm of hurt minds, great nature’s second course,
    Chief nourisher in life’s feast.”
    —Shakespeare. Macbeth (2.2.46-51)
School Start Times

Copyright Jeff Parker. Printed by permission.
Experts divide sleep into two basic categories based on the electrical activity in the brain. During rapid eye movement (REM) sleep, the pulses are short and fast. It is sometimes called paradoxical sleep because the brain seems to be as busy as when it’s awake. Our most vivid dreams occur during REM sleep. Higher parts of the brain dedicated to decision making and some kinds of memory are quiet, while areas involved in emotion are active. REM sleep may be one way the brain processes the unruly emotional content of our lives.

Slow wave sleep (SWS) is characterized by relatively slow waves of electrical activity. Various restorative metabolic processes take place during this phase. Researchers have divided slow wave sleep into four stages defined by brain activity and ease of wakening, with stages 3 and 4 being the deepest.

The quality of sleep changes with age. Starting at about age 65—some experts say it happens sooner—the brain struggles to get into the deeper stages (3 and 4) of slow wave sleep. At age 75, it may not be able to get into stage 4 at all. This may explain why older people are easily awakened by noise and don’t feel well rested even after an apparently full night of sleep. REM also changes. Half of the sleep that infants and young children get is REM. In adults, REM plateaus at 20% to 25%.

Excerpt from “Sleep Well to Age Well.” *Harvard Health Letter* 27.7 (May 2002).
Any review of adolescent lifestyles in our society will reveal more than a dozen forces converging to push the sleep/arousal balance away from sleep and toward ever-higher arousal. What harm could there be in trying to push back a little toward valuing sleep? The potential benefits, according to Dr. Dahl, seem enormous.

Adolescents often “get by” with relatively little sleep, but it may be far less than they need. The observations of many parents, educators, and clinicians are in close agreement with a wealth of scientific data about the growing frequency of this worrisome pattern of behavior. As discussed in other articles in this special section, there has been recent progress in understanding many of the factors that contribute to adolescent sleep loss, including the role of early school starting times and the role of various biological and social influences on adolescents’ self-selected bedtime.

The increasing evidence that teenagers seem to be getting less sleep leads inevitably to the pragmatic question “How much sleep do adolescents really need?” Unfortunately, the medical/scientific answer to this question seems tautological. Sufficient sleep is defined as “the amount necessary to permit optimal daytime functioning.”

As impractical as that answer may appear, there are two important reasons for such a definition. First, sleep requirements can be remarkably different across individuals. Second, at a physiological level, sleep and waking states are closely intertwined aspects of a larger system of arousal regulation. (Sleep researchers often use the Chinese symbol of yin/yang to designate the interrelationship of sleep/wake states.)

At the centre of this discussion is a critical and pragmatic point: any evaluation of the sleep habits of adolescents must include a careful consideration of the waking consequences of sleep loss. The question becomes, in essence, “What are the daytime signs of diminished functioning that indicate insufficient sleep?” While there is a shortage of well-controlled research studies that seek to answer this question, this article focuses on the convergence of evidence suggesting that changes in mood and motivation are among the most important effects of sleep loss. Thus an important place to begin looking for evidence of insufficient sleep among adolescents is in the area of emotional or behavioral difficulties.
The Consequences of Insufficient Sleep for Adolescents (continued)

There is no shortage of epidemiological and clinical studies documenting recent increases in the rates of many psychiatric disorders among adolescents. Certainly many complex factors are likely to have contributed to the emotional and behavioural problems of teenagers, but the possible link to adolescent sleep patterns bears some scrutiny. There is clear evidence that sleep loss can lead to the development or exacerbation of behavioural and emotional problems. The key question is “How great is the contribution of sleep deprivation to these problems?” The magnitude of this link remains an open question that can only be answered through careful empirical research.

In the meantime, these issues have enormous ramifications for the fields of medicine and education with regard both to the physical and mental health of adolescents and to detriments to effective learning and social development. Many policy decisions will be influenced by our understanding and interpretation of the importance of sleep in these areas.

In this article I provide an overview of current scientific and clinical information regarding the consequences of insufficient sleep in adolescents. I pay particular attention to links between sleep and emotional regulation. The following is a brief outline of the main points to be presented:

1. Sleepiness. This is the most direct consequence of adolescent sleep loss, and it manifests itself most significantly in difficulty getting up on time for school and in falling asleep in school. These problems can further contribute to conflicts with parents and teachers and to poor self-esteem. Sleepiness is also associated with a strong tendency toward brief mental lapses (or micro-sleeps) that greatly increase the risk of motor vehicle and other kinds of accidents.

2. Tiredness. This is a symptom of sleep loss and includes changes in motivation—particularly difficulty initiating behaviours related to long-term or abstract goals and decreased persistence in working toward goals.

3. Mood, attention, and behaviour. Sleep loss can have negative effects on the control of mood, attention, and behaviour. Irritability, moodiness, and low tolerance for frustration are the most frequently described symptoms in sleep-deprived adolescents. However, in some situations, sleepy teenagers are more likely to appear silly, impulsive, or sad.

4. Impact of emotional and behavioural problems. Emotional arousal and distress can cause both difficulty falling asleep and sleep disruptions. Behavioural problems and family chaos can contribute to even later bedtimes and to sleep schedules that are ever more incompatible with school schedules.

5. Bi-directional effects. There are bi-directional effects between sleep and behavioural/emotional problems. It can be difficult at times to identify the causal links. For example, a depressed adolescent with severe sleep problems may be showing sleep disturbances that stem from depression or mood problems that stem from sleep disruption. Sleep loss can also contribute to a negative spiral or vicious cycle of deterioration. That is, sleep loss can have a negative effect on mood and behaviour, which leads to subsequent emotional/behavioural difficulties that further interfere with sleep. This produces a sequence of negative effects in both domains. In some clinical cases, such negative spirals appear to be a pathway to withdrawal from school or serious psychiatric problems.
Normal Sleep and Sleep Hygiene

Module 4: Issues in Health

Topic 3

How much sleep do you need?

Humans adapt to the 24-hour cycles of light and dark using their internalclocks (circadian rhythms). These clocks dictate that adults have one major episode of sleep at night typically lasting about 8 hours - ranging from 6 to 9 hours per night. Each person must determine his or her own sleep need. You can determine this ideal amount of sleep by simply paying attention to whether or not you feel rested in the morning and alert throughout the day. If no amount of sleep will make you feel rested on the next day, then you may want to seek medical advice, including being evaluated for a sleep disorder. People tend to sleep about 30 minutes longer on weekends, indicating that they may be accumulating a sleep debt during the week. It is important to understand that you cannot “catch up” on lost sleep, or store sleep for the future, by getting more on weekends! This is because lost sleep on any given night has immediate consequences for the very next day (e.g. driving, work performance, memory and learning). Research indicates that sleep loss impairs your response time, motor ability, visual acuity, memory and attention.

What is a typical night’s sleep?

The depth and character of sleep change in a predictable manner across the night. Healthy, young adults will fall asleep in 10-20 minutes after “lights out”. Thereafter, the sleeper will cycle through 5 different stages of sleep in the course of the night. As you fall asleep, your thoughts begin to wander and your awareness of the outside world is reduced (this is called “stage 1”). As much as 50-70% of the time is spent in stage 2 sleep, a relatively light stage of sleep (i.e., easy to awaken from sleep). Stages 3 and 4, occurring predominately in the first half of the night, are referred to as deep sleep since it requires a more meaningful or intense stimulus to awaken the sleeper (e.g., baby’s cry or your own name). Together, stages 1 through 4 are referred to as non-REM sleep. REM sleep (or rapid eye-movement sleep) will occur approximately every 90 minutes throughout the night. You can thus expect to experience 4-5 REM sleep episodes per night. The first REM period is typically very brief, lasting less than 10 minutes, while the final episode may continue for more than an hour. This means that you get most of your REM sleep during the second half of the night. REM sleep is commonly associated with dreaming because your most vivid and bizarre dream reports occur during this stage of sleep, although dreaming or mental imagery takes place in all stages of sleep. The sleep/wake histogram below illustrates how a healthy, young adult would cycle through the stages of sleep on a typical night.

Changes in sleep across the lifespan

The timing and duration of sleep change dramatically as we age. A newborn baby may sleep as much as 16 hours per day. Adolescents will sleep 9 hours on average although they prefer to go to bed later and wake up later than the usual 11 to 7 bedtime. This shift to a later sleep time is a normal pattern for teens; however, their school schedules preclude this desired pattern and as a result, many teens are chronically sleep deprived. Sleep in adults can be quite organized and efficient (meaning they sleep at regular clock times, fall asleep quickly, and have very little wakefulness during the night); however, lifestyle factors, behaviours, and poor sleep habits can grossly disrupt sleep in otherwise healthy adults. During later life, sleep becomes shorter in duration (about 6 hours on average); there is less time spent in deep sleep; arousals during the night are more frequent and for longer periods of time; and there is a tendency to nap during the day. Older adults prefer to go to bed earlier and wake up earlier. This shift to an earlier sleep time is a normal pattern for older adults. Just as the teenager does not stay in bed later because they are lazy, the older adult does not go to bed earlier for lack of anything better to do with their time – the timing of when we sleep and when we wake is governed by our internal circadian clocks. If you find that you are sleeping less at night than you used to, yet your daytime functioning is not impaired, then there may be no cause for concern about these changing sleep patterns. If you are distressed by the fragmented nature of your sleep at night (and long bouts of wakefulness during the night specifically), it is not recommended that you compensate with naps.

What about naps?

Daytime napping is natural for most toddlers. At about age 6 to 12 years, however, sleep begins to occur in a single nighttime episode. Napping behaviour is usually put aside until retirement age. Naps are generally only acceptable for people who have no difficulty falling asleep or staying asleep at night. Otherwise, the time you spend napping during the day may take away from your total sleep time at night. The optimal duration for a nap, whether during the daytime or while on the job for shift-workers, is 10-20 minutes. Twenty minutes is sufficient to feel rested, yet short enough not to interfere with nighttime sleep or your alertness on the job upon awakening. If you cannot get through the day without a long nap, despite also sleeping long hours at night, you should be evaluated for a sleep disorder.

Tips for a good night’s sleep

1. Make sleep a priority! In today’s busy world, too many people simply do not make the time for sleep. Are you allowing yourself enough time in bed to get the sleep you need? It is a good idea to keep track of how much sleep you are getting by keeping a “sleep diary.” You can do this by making note of your lights-out and wake-up times each day, taking care to note any time out of bed during the night. Also keep track of
the timing of your major meals, exercise and consumption of alcohol and caffeine. You may begin to see patterns emerge that will allow you to predict a good night versus a poor night of sleep. As a general rule, you should strive to keep a regular sleep/wake schedule. If you are experiencing difficulty sleeping at night, then a strict schedule becomes even more important. People suffering from insomnia should attempt to get out of bed at the same time each morning, even on weekends. An example of a sleep/wake diary is included in this brochure.

2. Practice good sleep hygiene! If you have trouble getting the sleep you need, work shifts, or simply cannot seem to find the time for sleep, then “sleep hygiene” is a practice that you need to work on more than others.

- Go to bed only when sleepy. Try a relaxing bedtime routine (e.g., soaking in a bath).
- Establish a good sleep environment with minimal distractions (noise, light, temperature).
- Avoid foods, beverages, and medications that may contain stimulants.
- Avoid alcohol and nicotine before going to sleep.
- Consume less or no caffeine.
- Exercise regularly, but do so around midday or early afternoon. Over-training or exercising too much is not advisable.
- Try behavioural/relaxation techniques to assist with physical and mental relaxation.
- Avoid naps in late afternoon and evening.
- Avoid heavy meals close to bedtime.
- Avoid fluids before going to sleep.
- Use the bed only for sleep and intimacy (do not eat, read or watch TV in bed!).
- Establish a regular waketime schedule.

How to complete a sleep/wake and activity diary:
Each morning, make note of the time you went to bed and woke-up, taking care to mark any time out of bed during the night. Throughout the day, also keep track of the timing of your major meals, exercise and consumption of alcohol or caffeine. Keep track of your habits for a 2-week period to gain some insight into your sleep/wake habits.

NORMAL SLEEP AND SLEEP HYGIENE

CANADIAN SLEEP SOCIETY
2003

Prepared for the CSS by:
Kimberly Cote, PhD,
Department of Psychology, Brock University
The first part of the article describes research studies that connect insufficient sleep to a number of chronic illnesses. Then it acknowledges the other side…

**Virtue or Indulgence?**

Some scientists remain skeptical that sleeping 8 hours should be the next great health virtue. They say that getting from the current evidence to a firm link between sleep loss and disease requires a giant leap of faith.

“Some people don’t have time to sleep, or they’d rather watch television. Should we condemn them before the evidence is in?” asks Daniel F. Kripke of the University of California, San Diego. Kripke argues that telling people that they’ll get sick if they don’t sleep enough may, ironically, worry them into insomnia.

Kripke and his colleagues published results in February that, on the surface, contradict the idea that more sleep is good for you. During a large epidemiological study lasting 6 years, people were more likely to die if they initially reported sleeping 7.5 hours or more a night than if they reported sleeping 5.5 to 7.5 hours a night. The researchers took into account such factors as age, weight, diagnosed illness, and medication use.

The amount that the average person in the United States sleeps per night, about 7 hours, is consistent with good health, Kripke concludes. “People who are saying you should sleep more don’t have the evidence,” he adds.

Anything more than 7 hours is optional sleep, which can be taken for relaxation and indulgence but is not necessary for good health, agrees sleep scientist Jim A. Horne of Loughborough University in England.

Vgontzas disagrees. Underlying depression and sickness probably explain the apparent association between sleeping 8 or more hours and increased mortality in Kripke’s study, he says.

However, neither Horne nor Kripke is swayed by the studies that show physiological changes in sleep-deprived subjects in the lab. The changes are probably real, they agree, but may not be meaningful—either because they’re not severe enough to cause long-term health effects or because they’re artifacts of the experimental situation.

The immune system probably does crank up and go on red alert when a person is awake longer, Horne explains. After all, a body is more likely to come across pathogens when it’s up and about. But there’s no evidence that this activity undermines health, he says.

The argument that people are evolutionally programmed to sleep 8 or 9 hours a night doesn’t hold up, at least in European history, Horne adds. Hundreds of years ago, people worked 14- or 15-hour days and were lucky to get 6 hours of sleep at night, he says. Moreover, their sleep patterns were different than those of modern slumberers. In England, people went to bed an hour after sundown, got up a few hours later for a midnight meal, and then slept a few more hours until sunup, Horne says. People are probably designed to sleep 6 or 7 hours at night and take a short afternoon nap, he suggests.

**Bleary Picture**

(continued)

Source: <www.sciencenews.org>.
Research on sleep deprivation and health is still in its infancy, Van Cauter admits. Nevertheless, she maintains that 8 or more hours of sleep a night is optimal.

“To suggest to people that you can maintain average sleep time of 6 hours and get on the road and drive your truck is criminal,” she asserts. It’s too early to say whether sleep loss causes disease, but sleeping certainly hinders performance and diminishes safety, she says.

There’s no reason to believe that sleeping more than 8 hours could be harmful or that insomnia could be good for you, Vgontzas adds.

“My general appraisal of the literature is, in terms of more or less normal variations in sleep amount and effects on health, we really don’t know,” reflects sleep specialist Alan Rechtschaffen of the University of Chicago. There’s a consensus that the extreme—below 6 hours a night—isn’t advisable, he says. Beyond that, distinguishing the health effects, if any, of 6 versus 7 versus 8 hours of sleep is going to take large, well-controlled studies that follow people over long periods. Optimal sleep also probably varies with age and gender, says Vgontzas.

So, as to whether millions of cases of obesity, diabetes, and cardiovascular disease could be prevented if people in the United States were simply to increase their sleep from 7 to 8 hours a night, the issue hasn’t been put to bed. But the early data are at least provocative.

“We have all the dots or a lot of the dots, and it looks like there’s a picture there, but the science that actually connects those dots hasn’t been done yet,” Dinges says.
Guess How Much Sleep These Animals Need?

Choose one of the following animals for each blank below:

dogs  pythons  human  tigers
giraffes  cats  children  cows
brown bats  horses  African elephants

If you don’t know, don’t worry. Just make a guess!

1) ____________ sleep 12 or more hours every 24 hours. They sleep mostly at night, but also during the day.

2) ____________ may be big, but they sleep only 3 hours every 24 hours.

3) Lucky for us humans, slimy ____________ sleep 15 to 20 hours and ____________ sleep 16 hours every 24 hours.

4) ____________ and ____________ sleep only 4 hours every 24 hours because they need more time to eat.

5) ____________ need at least 9 hours of sleep every 24 hours!

6) When they aren’t eating insects, ____________ sleep nearly 20 out of 24 hours every day.

7) ____________ don’t need pillows, because they sleep less than 2 hours each day standing up!

8) Some types of ____________ sleep more than others, usually 10 hours every 24 hours.

(see over for answers)
1) **Cats** sleep 12 or more hours every day. They sleep mostly at night, but also during the day.

2) **African elephants** may be big, but they sleep only 3 hours a day. They need the rest of the day to consume large amounts of food.

3) Lucky for us humans, slimy **pythons** sleep about 15 hours (if they are hungry) or as many as 20 hours after feeding. **Tigers** sleep 16 hours a day. Both animals conserve precious energy for hunting.

4) **Horses** and **cows** sleep only 4 hours each day because they need more time to eat. Like elephants, horses and cows need plenty of time to eat and digest enough food.

5) **Human children** should sleep at least 9 hours each day! This is an important point to emphasize with your students.

6) When they aren’t eating insects, **brown bats** sleep nearly 20 hours each day. As with pythons and tigers, bats need to conserve energy for hunting.

7) **Giraffes** don’t need pillows, because they sleep less than 2 hours each day standing up! Giraffes sleep in short bursts. Some scientists speculate that they “semi-sleep” while they are eating as well—a form of “zoning out.”

8) Some types of **dogs** sleep more than others, but most sleep around 10 hours a day. Some, however, sleep as many as 14 hours a day.
Survey: Personal Experience with Herbal Remedies

Answer the following questions:

1. Have you ever taken an herbal remedy? Yes ___ No ___
   (If no, skip to question 3.)

2. Mark with a tick each of the following health problems that have caused you to try an herbal remedy:
   - sleeplessness ___
   - lack of energy ___
   - headache ___
   - cold ___
   - stomach ache ___
   - allergies ___
   - depression ___
   - forgetfulness ___
   - weight loss ___
   - weight gain ___
   - beauty aids* ___ (*makeup, hair products, deodorants)
   - building immune system ___
   - building muscle ___
   - skin disorders ___
   - aches and pains ___
   - other* ___ (*describe)

3. Do you take conventional medications on a regular basis? Yes ___ No ___

4. With which of the following statements do you most agree? Place a tick beside each.
   - ____ Herbal medicine is an ancient, worthless practice that has no basis in science.
   - ____ Herbal medicine may work for some, but I prefer to take conventional medicines.
   - ____ Herbal medicine may be a viable medical practice, but I need more information to justify its use.
   - ____ Herbal remedies are as reliable a medical practice as conventional medicines.
   - ____ Herbal medicine is a better way to treat many illnesses than is conventional medicine.
   - ____ I would be confident in taking a combination of herbal and conventional medicines.
   - ____ I believe in prescriptive rather than preventative medicine.
   - ____ I do not believe in taking any kind of medicine.

5. Are herbal supplements as closely regulated as other drugs? Yes ___ No ___

6. Do you believe that herbal supplements are safe? Always ___ Sometimes ___ Never ___

 Herbal medicine, the mainstay of therapeutics for centuries before modern purified drugs relegated it to the status of near-quackery, has in the last five years emerged from the fringes of health care with an astonishing flourish and now shows clear signs of joining the medical mainstream.

Despite many cautionary tales about adulterated and even dangerous products, herbs formulated as capsules, tinctures, extracts and teas—and increasingly as additions to common foods like potato chips and fruit drinks—are now routinely used by a third of American adults seeking to enhance their health or alleviate their illnesses. Each day the herbal realm wins new converts, particularly among those who have become disillusioned with the cost and consequences of traditional drugs, distrustful of conventional physicians and convinced that “natural” equals “good.”

Yet, because herbal products are classified as dietary supplements, not drugs, and face none of the premarket hurdles drugs must clear, consumers have no assurance of safety or effectiveness. Indeed, scores of products sold in the United States are listed by European and American authorities as ineffective, unsafe or both, and manufacturing standards to assure high quality have been proposed but are not yet in force.

Thus, countless consumers are wasting their money on useless products or jeopardizing their health on hazardous ones. Among the serious side effects that have been linked to herbal remedies are high blood pressure, life-threatening allergic reactions, heart rhythm abnormalities, mania, kidney failure and liver damage. A few widely available products, including sassafras and comfrey, contain known carcinogens.

At the same time, according to a report last year in the journal *Psychosomatics*, unsuspecting consumers “have used herbal remedies with good results only to discover that the benefit was actually derived from the presence of undisclosed medicines,” including steroids, anti-inflammatory agents, sedatives and hormones.

“The lack of quality standards is the No. 1 problem in the whole industry,” said Dr. Varro Tyler, emeritus professor of pharmacognosy (the study of active ingredients in plants) at Purdue University. Tyler, who has no financial connection to herbal products and is arguably the nation’s leading independent expert on herbal medicine, said: “I feel sorry for the typical consumer. How is he or she to know what is best, what products are reliable and safe? Even when a label says the product has been standardized, the consumer has no way to know if it actually meets that standard.” And even if an herbal product has been reliably made in some standard dose, it does not mean that scientific studies have shown it to be effective.

The industry itself is promoting a “good manufacturing practices” doctrine. Annette Dickinson, director of scientific and regulatory affairs for the Council for Responsible Nutrition, a trade organization for producers of dietary supplements, said a consortium of associations submitted a document of manufacturing standards to the Food and Drug Administration two years ago. Although such a standard would say nothing about an herb’s safety or effectiveness, it would result in reliable methods that the industry would have to use to assure the identity and quality of its products. The agency has issued a notice of proposed rules but no final ruling as yet.

Nonetheless, botanicals—as herbal products are more accurately known—are enjoying an annual retail market approaching $4 billion, up from $839 million in 1991 and growing about 18 percent a year. Hundreds of products formulated with virtually no government oversight are crowding shelves of health food stores, food markets and pharmacies nationwide. Supplements are also widely sold by marketers like Amway, through
catalogs and on the Internet. Now, even major pharmaceutical companies like Warner Lambert, American Home Products, Bayer and SmithKline Beecham are introducing herbal products, adding respectability to this marginalized market.

Some herbs—like echinacea, goldenseal, American ginseng and wild yam—have become so popular that their continued supply from natural sources is in danger. As the plants become scarcer and more expensive, products containing them are increasingly likely to be adulterated and may even contain none of the herb listed on the label. Peggy Brevoort, president of East Earth Herb Inc., a company in Eugene, Ore., that produces botanicals, said the demand for St. John’s wort, used for mild depression, and kava, a calmative said to reduce anxiety, now exceeds their supply, introducing the “danger of adulteration” by “unscrupulous dealers.”

At the same time, two major new publications—a 1,244-page Physicians’ Desk Reference for Herbal Medicines, produced by the same company that publishes the Physicians’ Desk Reference, and an English-language edition of Germany’s therapeutic guide to herbal medicines, The Complete German Commission E Monographs—have been issued to help educate physicians, pharmacists and interested consumers about the known uses, proper dosages and safety concerns of more than 600 botanicals now sold in this country. The evaluations in both books are based on studies, most done in Germany and reviewed by teams of experts.

Last month, the National Institutes of Health began listing on the Internet international bibliographic information on dietary supplements, including herbal products. The address is www.nal.usda.gov/fnic/IBIDS/.

In addition, a few medical and pharmacology schools have recently introduced courses in phytomedicine, the study of botanicals. And next month the American Pharmaceutical Association will conduct a two-day program on herbal medicine as part of its annual meeting. Still, most doctors remain wary of botanicals, especially when patients choose self-medication with plant extracts over established medical remedies.

The very act of Congress that has fostered this growth—the 1994 Dietary Supplement Health and Education Act—has also permitted chaos to reign in the botanical marketplace, with no mechanism to assure that products are safe or effective. Pushed heavily by Republican Senator Orrin Hatch of Utah, the home base of many supplement makers, and passed over the objections of the FDA, the law created a new product class, the dietary supplement, that was not subject to regulations applied to drugs. Now any substance that can be found in foods, regardless of amount or action and including substances that act as hormones or toxins, can be produced and sold without any premarket testing or agency approval.

Marketed as neither a food nor a drug, herbal products are not obliged to meet any established standards of effectiveness or safety for medicinal products, which require extensive laboratory and clinical trials before approval. As with other substances classified as dietary supplements, the FDA can restrict the sale of an herbal product only if it receives well-documented reports of health problems associated with it. The agency took four years, and more than 100 reports of life-threatening symptoms and 38 deaths, to act against ephedra, often sold as the Chinese herb ma huang, a stimulant that can prove disastrous to people with heart problems.

With FDA authority limited by the 1994 law, the Federal Trade Commission, which monitors advertising, has taken a more active role in monitoring supplement makers.

The FTC last year took legal action against seven manufacturers that had broken rules requiring advertising be truthful and verifiable. The companies were selling remedies or purported cure-alls for ailments like impotence, cancer and obesity. The commission also sent e-mail warnings to 1,200 Internet sites that it said had made “incredible claims” for drugs, devices and supplements, including herbal remedies that would supposedly ward off AIDS. Also, the commission late last year issued its first set of advertising guidelines
Americans Gamble on Herbs as Medicine (continued)

aimed specifically at the supplement industry.
Still, the current regulations have created a quagmire of consumer confusion and set up potential health crises that even industry officials say could ultimately hurt producers as well as users of herbal products. Under the 1994 law, consumers have no assurance that an herbal product contains what the label says it does or that it is free from harmful contaminants. Independent analyses of some products, particularly those containing costly or scarce herbs, revealed that some have little or none of the purported active ingredient listed on the label.

Adding to the confusion is that botanical makers are allowed to describe products only in terms of their effects on the structure or function of the body, not their potential health benefits. Thus, a product label might say “promotes cardiac function” but it cannot say “lowers cholesterol.” Likewise, although the law does allow health warnings on the label, most manufacturers have yet to include them.
Consumers are warned, however, that federal drug safety officials are not watching the store. All botanicals must display a disclaimer on the label following the description of the product’s structural or functional role: “This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.” To which Tyler commented, “If that is true, why on earth would anyone use it?”

The seeds of the modern herbal market were sown in the ’60s when “green, organic and natural became buzzwords,” Tyler said. But they did not mature until the ’90s with the growing consumer interest in “self-care and controlling one’s destiny,” he said. Many turned to herbs as a gentler way to treat health problems and a potential tool for preserving mental and physical health.

The interest has spawned scores of Internet sites and hundreds of books on various herbs. But much of the literature is replete with poorly documented health claims and, with few exceptions (among them, Tyler’s books), advocacy prevails over objectivity.

Because plants contain a mixture of relatively diluted chemicals, they naturally tend to have milder actions, both in their therapeutic benefits and side effects, than the concentrated, single chemicals in most drugs. Thus, botanicals generally take longer to act than regular pharmaceuticals and few have the potency of a prescription, the one possible exception being saw palmetto, which a well-designed study indicated may be as helpful for an enlarged prostate as the more expensive and riskier drug, Proscar®.

The combination of chemicals in botanicals is potentially both a plus and a minus. When two or more chemicals enhance one another’s activity, the therapeutic benefit could theoretically exceed that of an isolated substance formulated as a drug. Mark Blumenthal, who heads the American Botanical Council, noted that the herb St. John’s wort, widely used in Germany and increasingly in the United States to counter mild depression, is standardized for a substance called hypericin. But, he explained, “hypericin is not directly linked to its antidepressant activity.” Rather, other substances in the herb seem to have diverse actions on brain chemicals, all of which work together to counter depression.

Equally possible, though, when using an herb with two or more active chemicals, is that one will cancel the benefits of another or introduce a hazard. Without careful chemical tests and large, well-controlled clinical trials such actions are often hard to detect.

Consumer confidence in herbal medicine is bolstered by the common but erroneous assumption that “natural” equals “safe” and the public’s failure to realize that many plants contain chemicals that are potent drugs or outright poisons. Natural laxatives like the herb Cascara sagrada are just as habit-forming and harmful to the colon as laxatives sold as drugs.

Indeed, one quarter of prescription drugs and hundreds of over-the-counter products were originally isolated from plants. Ephedra, for example, contains a natural stimulant that is approved for use as a decongestant and bronchial dilator in some pharmaceutical products. However, when used in
uncontrolled dosages or by people with certain underlying health problems, it can cause a dangerous rise in blood pressure and, in its herbal form, has been responsible for serious adverse reactions and dozens of deaths, mainly among people who inappropriately used it as a stimulant or diet aid.

Complicating the safety issue is the fact, shown in several recent surveys, that most patients fail to tell their physicians they use herbal supplements and thus sometimes risk dangerous drug interactions or endure costly tests or treatments when an herb causes an unrecognized side effect. Experts say many patients withhold information about herbal drug use because they fear being ridiculed by their doctors.

Although all German physicians must take courses on herbal remedies, only a handful of American medical and pharmacology schools offer courses in this field.

A year ago, the President’s Commission on Dietary Supplement Labels recommended that the FDA appoint a committee to evaluate the safety and effectiveness of herbal products. “This could be the most important step in the United States toward legitimizing herbal medicine,” Tyler said.

However, the agency responded that it lacked the budget to support such an effort. American physicians have completed and published only a few well-designed studies of some popular botanicals. Among them were studies showing that saw palmetto can shrink an enlarged prostate and ginkgo biloba can improve memory in patients with early Alzheimer’s disease.

The Office of Dietary Supplements at the National Institutes of Health is helping to finance a three-year multicenter study of St. John’s wort as a treatment for clinical depression and a study of plant-based estrogens as a preventive for postmenopausal health problems.

However, thousands of studies of botanicals have been completed abroad—mainly in Germany—that strongly suggest a health-promoting role for more than 200 plant products. Germany’s Commission E evaluated 380 botanicals, approving 254 as safe and reasonably effective and disapproving 126 as ineffective, unsafe or both.

The Germans use a different criterion to assess an herb’s benefits—a doctrine of “reasonable certainty” that the herb has the desired effect and is safe, Blumenthal said. Whereas standard testing of a drug for approval by the FDA can cost as much as $500 million per product—a prohibitive amount for companies to spend on botanicals that cannot be patented—tests to establish “reasonable certainty” would cost only $1 million to $2 million, Tyler estimated.

In June 1996, Dr. Robert Temple, director of medical policy for the FDA’s Center for Drug Evaluation, suggested that, rather than subjecting botanicals to the extensive tests required for drugs, the agency might consider applying less stringent criteria to assess an herb’s effects, at least when a product is to be used only for a short time. He said, “A long history of safe use might provide sufficient safety information for products that are intended for short-term use.”

More than four dozen botanicals or botanical formulations have been submitted to the agency as investigational new drugs. If any meet the agency’s criteria for safety and effectiveness and are eventually approved as drugs, they would be allowed to carry direct health claims—in place of just structure and function statements—on labels and in advertising.

Meanwhile, Dr. Joerg Gruenwald, medical director of a German phytomedicine company and primary editor of the new Physicians’ Desk Reference for Herbal Medicines, said professionals can rely on that volume for current, documented information about botanicals. The volume, to be issued annually, updates the Commission E reports and adds several hundred other products sold in the United States, listing effects, side effects and conditions in which their use is inadvisable.
Focus Questions: “Americans Gamble on Herbs as Medicine”

Answer the following questions sentences by reading the first thirteen paragraphs of the article.

I. Language:
Read the title. What does it tell you about the topic of the article that follows? What does the use of the word “gamble” suggest about the use of herbs as medicine?

1. Look in the first paragraph for the term “near-quackery.” Can you determine what it means by using context clues?

2. Find the definition for the literary term “metaphor.” Can you find a metaphor in paragraph three? Explain the metaphor and show how it is effective in describing the testing of new products.

3. In paragraph three, the word “effective” has been changed by adding a prefix in one sentence and a suffix in another. Explain the purpose of using the prefix and suffix.

4. Find at least three examples of introductory words or phrases. How are they used? What punctuation mark always follows these words and phrases? Why?

5. Find two definition patterns that we have used in previous lessons.

II. Content:

1. Explain what the increasing use of herbal medicines over traditional ones states about society as a whole.

2. Suggest why a person might choose to use an herbal medicine over a conventional Western-type treatment.

3. Explain why herbal products are not as highly regulated as drugs and how this might affect consumers.

4. Discuss the significance of the report in the journal Psychosomatics that states that “unsuspecting consumers have used herbal remedies with good results only to discover that the benefit was actually derived from the presence of undisclosed medicines,” including steroids, anti-inflammatory agents, sedatives, and hormones.”

5. Explain why Dr. Varro E. Tyler feels that “the lack of quality standards is the No. 1 problem in the whole [herbal supplement] industry.”

6. Describe how Annette Dickinson supports the “good manufacturing practices” doctrine regarding the use of herbs for medicinal purposes.

7. Herbal products are not closely regulated, yet consumers are buying them at an increasing rate. Speculate why this is occurring.

8. The natural supplies of some herbs are becoming endangered due to the popularity of herbal supplements and herbal medicine. Suggest how this is happening and predict the impact it may have on the future of the industry and on the earth.

9. Describe what informational goods and services are available about herbs and their uses. Explain what they may do to forward the trend in herbal supplements. (Students: Note the part of speech of “forward” in this question.)

Designing an Experiment: Research and Presentation of a Scientifically Valid Study to Test the Effectiveness of an Herbal Remedy

In doing your research:

1. Choose an herbal remedy.

2. **Observations and description:** Find reliable sources that will help you answer the following questions:
   - **Explain** the history behind the use of this herb.
   - **List** the ailments this remedy is supposed to prevent, relieve, or cure. If there is more than one, choose an ailment on which to focus your research.
   - **Describe** the symptoms commonly associated with this ailment.
   - **Describe** the suggested results of taking this remedy.
   - **Discuss** the anecdotal evidence that exists showing that this remedy is effective.
   - **Document** the warnings/problems that are associated with this herbal remedy.
   - **List** any conflicting claims about the success of using this herbal remedy.
   - **Find** a picture of the herb in plant form. Where is this herb found?

   (This information will be used as the “Background Information” section of your written experiment.)

3. **Hypothesis:** Think and note:
   - **Consider** the anecdotal information gathered. **Explain** some of the possible causes for it.
   - Of these possibilities, **choose** the one you think is most reasonable. **Decide** which possibility you would like to test.
   - Based on the research and observations made previously, formulate a **hypothesis** about the herbal remedy. *(This will be the “Hypothesis” section of your written experiment.)*
   - **Create** a clear, concise **title** for your experiment.
   - **Write out** a statement of purpose that describes what you intend to try and prove. *(This will be the “Purpose” section of your written experiment.)*

4. **Experiment:**
   - **Design** a double-blind experiment. This is an experiment in which neither the test subjects nor those dispensing the remedy know what materials they are dispensing or receiving.
   - **Write** the step-by-step directions, noting each step’s purpose. *(This information will form the “Procedures” section of your written experiment.)*

(continued)

Designing an Experiment: Research and Presentation of a Scientifically Valid Study to Test the Effectiveness of an Herbal Remedy (continued)

- **Consider** the following:
  - Besides being affected by the remedy, how else might your subjects get well?
  - Based on these answers, what variables should be controlled?
  - How will you control these variables?
  - Can the people being tested affect the outcome?
  - How else might your observations of the test show a bias?
  - Whom will you test?
  - Will you have more than one group? Why or why not?
  - How will you control for bias on the part of those taking the remedy?
  - Who will perform the test?
  - How will you control for bias on the part of those dispensing the remedy?
  - In what form (salve, extracts, teas, tinctures, tablets, etc.) will the remedy be dispensed, and why?
  - When will you dispense the remedy, and why?
  - Where will the test be held?
  - What materials will you need? (This will form the “Materials” section of your written experiment.)
Prevalence and Health

PREVALENCE AND HEALTH

Male Smoking

Smoking prevalence among men 15 and over

Over 300 million people smoke in China; more than one-third of the world's population.

Female Smoking

About 250 million women in the world are daily smokers. About 22 percent of women in developed countries and 7 percent of women in developing countries smoke tobacco. In addition, many women in South Asia chew tobacco.

Cigarette smoking among women in declining in many countries, notably Australia, Canada, the UK and the USA. But this trend is not found in all countries. In several southern, central and eastern European countries cigarette smoking is other still increasing among women or has not shown any decline.

The tobacco industry promotes cigarettes to women using seductive but false images of vitality, virility, modernity, emancipation, sophistication, and sexual allure. In reality, it causes disease and death. Tobacco companies have now produced a range of brands aimed at women.

More notable are the "women-only" brands and sex specific cigarettes. They are long, extra thin, low tar, light colored or menthol.

"Smoking behavior of women differs from that of men. More highly motivated to smoke, they find it harder to stop smoking. Women are more neurotic than men. There may be a case for launching a female oriented cigarette with relatively high deliveries of nicotine." 1976 research report, British American Tobacco

Youth

"If younger adults tend away from smoking, the industry will react, just as a population which does not give birth will eventually stabilize." - RJ Reynolds researcher, 1984

The overwhelming majority of smokers begin tobacco use before they reach adulthood. Among those young people who smoke, nearly one quarter smoked their first cigarette before they reached the age of ten.

Several factors increase the risk of youth smoking. These include tobacco industry advertising and promotion, easy access to tobacco products, and low prices. Peer pressure plays an important role through friends' and siblings' smoking. Other risk factors associated with youth smoking include having a lower self-esteem than peers, and perceiving that tobacco use is normal or "cool".

Many studies show that parental smoking is associated with higher youth smoking.

While the most serious effects of tobacco use normally occur after decades of smoking, there are also immediate negative health effects for young smokers. Most teenage smokers are already addicted while in adolescence. The younger the person begins to smoke, the greater the risk of eventually contracting smoking-related diseases such as cancer or heart disease.

The highest youth smoking rates can be found in Central and Eastern Europe, sections of India, and some of the Western Pacific islands.

Tobacco users

Percentage of 13–15 year olds using tobacco

Early smokers

Over 40% of children smoked their first whole cigarette before age 10 in Ghana, Orissa, Guinea, India, Jamaica, Palau, Poland, Nauru, and Lucia.

Global consumption of cigarettes has been rising steadily since manufactured cigarettes were introduced at the beginning of the 20th century. While consumption is levelling off and even decreasing in some countries, worldwide more people are smoking, and smokers are smoking more cigarettes.

The number of smokers will increase mainly due to expansion of the world’s population. By 2030 there will be at least another 2 billion people in the world. Even if prevalence rates fall, the absolute number of smokers will increase. The expected continuing decrease in male smoking prevalence will be offset by the increase in female smoking rates, especially in developing countries.

The consumption of tobacco has reached the proportions of a global epidemic. Tobacco companies are cranking out cigarettes at the rate of five and a half trillion a year – nearly 1,000 cigarettes for every man, woman, and child on the planet.

Cigarettes account for the largest share of manufactured tobacco products, 96 percent of total value sales. Asia, Australia and the Far East are by far the largest consumers (2.715 billion cigarettes), followed by the Americas (745 billion), Eastern Europe and former Soviet Republics (631 billion) and Western Europe (606 billion).

Philip Morris is the world's largest transnational tobacco company, whose Marlboro brand is the world leader. In 1999 the company had sales of over US$47 billion. However, excluding the US-domestic market, BAT sells the most cigarettes worldwide and has the largest network in the most countries.

The tobacco industry is a mixture of some of the most powerful transnational commercial companies in the world. Tobacco companies, which frequently merge, own or have stakes in numerous independent companies and run an intricate variety of joint ventures. State tobacco monopolies have been in decline since the 1980s. About 7,000 medium to large state-owned enterprises were privatized in the 1990s and further 60,000 in the 1990s after the collapse of the former Soviet Union. From the late 1990s, the IMF has pressured countries such as the Republic of Korea, the Republic of Moldova, Thailand and Turkey to privatize their state tobacco industry as a condition of loans.

The remaining monopolies represent a combined consumption of 2 billion cigarettes or 40 percent of the world's total cigarette consumption.

Since the early 1990s, the cigarette companies have maximally increased their manufacturing capacity in developing countries and eastern Europe. Where once these countries exported "death and disease", increasingly, these are manufactured locally.

Leading manufacturer by country

- Philip Morris
- British American Tobacco (BAT)
- Japan Tobacco International (JTI)
- Reminta
- Altas

The Big Five

Leading transnational tobacco companies 1999

- Philip Morris
- BAT
- JTI
- Reminta
- Altas

The number of global market share

- Percentage of global market share
- Revenue US$ billions

Cigarettes are possibly the most marketed product in the world. While there is no reliable estimate of global cigarette marketing expenditures, it is clearly in the tens of billions of US dollars a year. In the USA alone, over $10 billion is spent a year on marketing cigarettes, and this at a time when advertising is prohibited on television and radio, when there are limitations on certain types of outdoor advertising and sponsorship, and when cigarette sales are falling. Annual marketing expenditure is over $300 per smoker, and over 46 cents for every pack sold. Promotional allowances, that is, payments made to retailers to facilitate sales, account for 41 percent of the total expenditure on cigarette marketing.

Cigarette marketing is louder and more aggressive in developing countries than it is in the developed world. Cigarette advertising on television and radio is common, and a variety of other venues are exploited. These include sports, arts, pop, fashion, and street events, adventure tours, contests, give aways and the Internet.

There are also the hidden advertisements such as the placement of cigarette smoking and tobacco products in films. In addition there is sponsorship of universities, good will donations for community events, and advertising of other goods and products bearing the cigarette name. Such marketing is seen throughout both the developed and the developing world.

A Smoker’s Hand

Cigarette Package Warnings

*Copyright Health Canada. <www.he-sc.gc.ca>.
Manufacturers of cigarettes for sale in Canada are required to print one of the 16 new health warnings shown above on each pack of cigarettes. The requirement came into effect on December 23rd, 2000 for brands with a market share of 2% or more, and will be extended to smaller brands by mid-2001.

The above JPGs were scanned from cigarette packs purchased in Québec on January 2nd, 2001. The new warnings are trickling into retail outlets across the country as stocks of cigarettes are renewed. Warnings showed up first on the country’s four biggest brands: du Maurier, Player’s and Matinée (all manufactured by Imperial Tobacco of Canada, a subsidiary of British American Tobacco) and Export ‘A’ (manufactured by JTI-Macdonald, a subsidiary of Japan Tobacco International).

The new warning system extends to carton wrappers, which now include a warning on each of their six surfaces.
Health Risks

Tobacco smoke contains over 4,000 chemicals, some of which have marked irritant properties and some 60 are known as suspected carcinogens.

Babies in the womb
Smoking in pregnancy
Increased risks:
- Spontaneous abortion (miscarriage)
- Intrauterine growth retardation
- Prenatal and postnatal growth retardation
- Birth defects, eg congenital malformations
- Reduced birth weight
- Premature birth
- Infants:
  - Smaller infant (<25th percentile)
  - Stillborn infant

Health Risks

Time ticks away
Every cigarette takes 7 minutes off your life

Brady chemicals
- Tobacco smoke includes:
  - Acetic
  - Acrolein
  - Ammonia
  - Benzene
  - Cadmium
  - Carbon monoxide
  - Cigarette smoke
  - Chlorine
  - Ethylene
  - Formaldehyde
  - Hydrogen cyanide
  - Methylene
  - Nitrogen dioxide
  - Phosgene
  - Vinyl chloride

Brady chemicals are found in:
- Paper stringer
- Floor cleaner
- Ant poison
- Lighter fuel
- Car batteries
- Car exhaust fumes
- Pesticide
- Gas chamber
- Rocket fuel
- Metal halls
- Mineral solvent
- Plastics

How smoking harms you

Parts of the body especially affected by tobacco use

- Skin
  - Wounds, premature aging
- Respiratory system
  - Lung cancer
  - Chronic obstructive pulmonary disease and emphysema
  - Complicated tuberculosis
- Digestive system
  - Peptic ulcers
  - Dyspepsia
  - Gastroesophageal reflux disease
  - Jaundice
- Nervous system
  - Stroke (ischemic and hemorrhagic)
  - Addiction/withdrawal
  - Mental and behavioral disorders
  - Anxiety and depression
  - Memory loss

In summary, smoking is responsible for:
- 90% of all lung cancers
- 85% of chronic bronchitis and emphysema
- 75% of cases of chronic heart disease
- 25% of all cancer deaths

Passive Smoking

The first conclusive evidence on the dangers of passive smoking came from Takeshi Hirayama's study in 1981 on lung cancer in non-smoking Japanese women married to men who smoked. Although the tobacco industry immediately launched a multi-million dollar campaign to discredit the evidence, dozens of further studies have confirmed the link. Research then broadened into other areas and new scientific evidence continues to accumulate.

A complex mixture of chemicals is generated from the burning and smoking of tobacco. As a passive smoker, the non-smoker breathes "sidestream" smoke from the burning tip of the cigarette and "mainstream" smoke that has been inhaled and then exhaled by the smoker.

The risk of lung cancer in non-smokers exposed to passive smoking is increased by between 20 and 30 percent, and the excess risk of heart disease is 21 percent.

Children are at particular risk from “adult” smoking. Adverse health effects include pneumonia and bronchitis, coughing and wheezing, worsening of asthma, middle ear disease, and possibly neuro behavioral impairment and cardiovascular disease in adulthood.

A pregnant woman’s exposure to other people’s smoking can harm her fetus. The effects are compounded when the child is exposed to passive smoking after birth.

Deaths

Cigarettes kill half of all lifetime smokers. Half die in middle age, between 35 and 69 years old.
No other consumer product is as dangerous, or kills as many people. Tobacco kills more than AIDS, legal drugs, illegal drugs, road accidents, murder, and suicide combined.
Tobacco already kills more men in developing countries than in industrialised countries, and it is likely that deaths among women will soon be the same.
While 0.1 billion people died from tobacco use in the 20th century, ten times as many will die in the 21st century. Maternal smoking during pregnancy is responsible for many foetal deaths and is also a major cause of Sudden Infant Death Syndrome.
Passive smoking in the home, workplace, or in public places also kills, although in lower numbers. However, those killed do not die from their own habit, but from someone else’s.
Children are at particular risk from adults smoking, and even smoking by other adults around a pregnant woman has a harmful effect on a foetus.

Past and future
Annual deaths due to tobacco estimated worldwide 1960–2030 projected

Quitting

The main dangers of smoking decrease when smokers quit, even in those who have smoked for 30 or more years.

Smokers move through stages in relation to quitting: pre-contemplation, contemplation, readiness to action, followed by maintenance or relapse. Many move through this cycle several times before they finally quit, while others report they found it easier to quit than they expected. These stages are influenced by increased costs from tax increases or reduction of smuggling, illness in the smoker, family or friends dying from tobacco, the media, health professionals, base on promotion, creation of smoke-free areas and, while most smokers set quit on their own, availability of support and treatment.

There are now techniques to assist those who want to quit smoking, although these are not available in all parts of the world: social support, classes, quitlines, internet sites, skills training, nicotine replacement therapy (NRT) and other pharmaceutical treatments.

If interventions only focus on prevention of initiation, and do not address cessation, then 160 million additional smokers will die before 2020 (see below).

Effect of smoking restrictions at home and at work

USA 1992-99 percentages

<table>
<thead>
<tr>
<th>Type of intervention</th>
<th>Quitting</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 10% pre-increase</td>
<td>36% increase in quitting</td>
</tr>
<tr>
<td>Anti-smoking media</td>
<td>Increased number of attempts and success</td>
</tr>
<tr>
<td>Bans on promotion</td>
<td>Complete ban reduces consumption by 8%</td>
</tr>
<tr>
<td>Restrictions on youth access</td>
<td>No evidence</td>
</tr>
<tr>
<td>Smoking restrictions</td>
<td>Work and household restrictions most effective</td>
</tr>
<tr>
<td>NRT</td>
<td>Higher number of attempts to quit</td>
</tr>
</tbody>
</table>

Ex-smokers

Percentage of people who used to smoke who have quit smoking, latest available data

- 40% or more
- 30% - 39%
- 20% - 29%
- 10% - 19%
- 10% or less
- No data

Winnipeg Free Press: Smoker’s Helpline and Statistics

WHAT’S IN A CALL?

All callers are immediately connected to a trained quit specialist. The one couch rule applies here as the only prompt is 1 for English or 2 for French. During the call, guidance will be provided that is tailored, based on the caller’s individual needs and goals. For example, some callers have not yet thought about making a quit attempt and are just looking for information. Other callers may be thinking about quitting but aren’t sure of the appropriate steps to take, while other callers are ready to make a quit attempt and need support and guidance. In fact, callers who have already quit smoking but need some counseling to stay smoke-free are also welcome to utilize the line.

In addition, an important feature of the Smokers’ Helpline is that key influencers making calls to the line are welcomed, as individuals can access the line to seek advice to help a friend or loved one to quit smoking. Optional follow-up calls can be made to the caller by a trained quit specialist to keep track of the caller’s progress and, more importantly, to provide support and encouragement.

The following statistics were taken from MANTRA’s (Manitoba Tobacco Reduction Alliance) Comprehensive Strategy Document.

TOBACCO USE

On a global level, the impacts of tobacco use are staggering. The World Health Organization (WHO) estimates smoking kills one person every 10 seconds, which is around 4 million deaths a year. Health Canada predicts that more than 45,000 Canadians will die due to smoking this year. Of these, more than 100 nonsmokers will die of lung cancer and at least 700 non-smokers will die of coronary heart disease caused by exposure to second-hand smoke.

The World Health Organization indicated that in the mid-1990’s, Canadian women had the 7th highest smoking rate in the world whereas Canadian men had the 73rd highest.

Hilda: I really hadn’t thought about quitting until I heard about the Smokers’ Helpline. So I called, just to see what it was all about. I was amazed at how supportive the quit specialist was. I’m still not ready to quit yet, but when I do quit, I know I’ll call the Smokers’ Helpline for help.”

Dorothy: I had no intentions of ever quitting until last week when I was diagnosed with lung cancer. I realized I had to quit immediately. I called the Smokers’ Helpline and now I’m on the road to recovery.”

(continued)
It is important that we recognize the gains that have been made and not allow ourselves to give credence to the idea that smoking is a "norm" amongst a majority of the population. Youth in particular appear vulnerable to overestimating the number of peers who actually smoke. What is, however, readily observable is the decline of smoking among women has not kept pace with the rate of decline among men.

**HEALTH IMPACT**

Tobacco is the leading cause of disease and preventable death in Manitoba.

The U.S. Department of Health indicates that there is no safe level of consumption. Tobacco smoke contains more than 4,000 substances, 50 of which are associated with, or known to cause cancer. In 1993, the U.S. Environmental Protection Agency classified cigarette smoke as a Class A carcinogen, a substance which has been shown to cause cancer in humans through studies on human population.

There is strong scientific evidence that smoking is related to more than 200 diseases and conditions.

Health Canada has reported that the risk of premature death is extremely high among smokers, half of all long-term smokers will eventually be killed by tobacco, and of these, half will die during middle age, losing 20 to 25 years of life.

**FACTS TO CONSIDER**

**Physicians For a Smoke-free Canada**

- Coronary heart disease and stroke are 2 to 4 times more common in smokers than in non-smokers.
- Tobacco use results in 90 - 95% of all chronic obstructive pulmonary disease (COPD).
- Tobacco is responsible for 30% of all cancer deaths.
- Every 35 minutes a Canadian woman dies as a result of smoking.
- Tobacco is responsible for one in five deaths in Canada – almost five times the number of deaths caused by car accidents, suicides, drug abuse, murder and AIDS combined.

"Christine I had been thinking about quitting for quite some time now, but I really didn't know where to go for help. When I heard about the Smokers' Helpline I gave it a try. Now I'm ready to make a quit attempt. And they're even going to call me the day before to see if I'm ready to go and to encourage me."

**ECONOMIC BURDEN**

Smoking is an expensive habit. Health Canada indicates that Canadian teenagers smoke more than 1.6 billion cigarettes each year—resulting in retail sales worth more than $380 million. With Manitoba teenagers accounting for approximately 4% of the Canadian teenage population, this would mean that Manitoba teens are spending over $13 million annually on cigarettes. Smoking rates tend to be higher amongst those who are socially and economically disadvantaged. This adds to the economic burden which they often face.
Benefits of Quitting Smoking

Ever wonder what happens to your body the moment you stop smoking? Within 20 minutes of stopping that last cigarette, the body begins a series of changes that continues for years.

20 MINUTES

- Blood pressure drops to normal.
- Pulse rate drops to normal.
- Body temperature of hands and feet increases to normal.

8 HOURS

- Carbon monoxide level in blood drops to normal.
- Oxygen level in blood increases to normal.

24 HOURS

- Chance of heart attack decreases.

48 HOURS

- Nerve endings start regrowing.
- Ability to smell and taste is enhanced.

2 WEEKS TO 3 MONTHS

- Circulation improves.
- Walking becomes easier.
- Lung function increases up to 30%.

1 TO 9 MONTHS

- Coughing, sinus congestion, fatigue, and shortness of breath decrease. Cilia regrow in lungs, increasing ability to handle mucus, clean the lungs, and reduce infection.
- Body's overall energy increases.

1 YEAR

- Excess risk of coronary heart disease is half that of a smoker.

5 YEARS

- Lung cancer death rate for average smoker (one pack a day) decreases by almost half.
- Stroke risk is reduced to that of a nonsmoker 5-15 years after quitting.
- Risk of cancer of the mouth, throat and esophagus is half that of a smoker's.

Benefits of Quitting Smoking (continued)

10 YEARS

- Lung cancer death rate similar to that of nonsmokers.
- Precancerous cells are replaced.
- Risk of cancer of the mouth, throat, esophagus, bladder, kidney and pancreas decreases.

15 YEARS

- Risk of coronary heart disease is that of a nonsmoker.

What Are Some Rewards of Quitting Smoking?

Immediate Rewards
Within 12 hours after you have your last cigarette, your body will begin to heal itself. The levels of carbon monoxide and nicotine in your system will decline rapidly, and your heart and lungs will begin to repair the damage caused by cigarette smoke.

Within a few days you will probably begin to notice some remarkable changes in your body. Your sense of smell and taste may improve. You will breathe easier, and your smoker's hack will begin to disappear, although you may notice that you will continue to cough for a while. And you will be free from the mess, smell, inconvenience, expense, and dependence of cigarette smoking.

Immediate Effects
As your body begins to repair itself, instead of feeling better right away, you may feel worse for a while. It's important to understand that healing is a process; it begins immediately, but it continues over time. These "withdrawal pangs" are really symptoms of the recovery process.

Immediately after quitting, many ex-smokers experience "symptoms of recovery" such as temporary weight gain caused by fluid retention, irregularity, and dry, sore gums or tongue. You may feel edgy, hungry, more tired, and more short-tempered than usual and have trouble sleeping and notice that you are coughing a lot. These symptoms are the result of your body clearing itself of nicotine, a powerful addictive chemical. Most nicotine is gone from the body in 2-3 days.

Long-range Benefits
It is important to understand that the long range after-effects of quitting are only temporary and signal the beginning of a healthier life. Now that you've quit, you've added a number of healthy productive days to each year of your life. Most important, you've greatly improved your chances for a longer life. You have significantly reduced your risk of death from heart disease, stroke, chronic bronchitis, emphysema, and several kinds of cancers; not just lung cancer. (Cigarette smoking is responsible every year for approximately 130,000 deaths from cancer, 170,000 deaths from heart disease, and 50,000 deaths from lung disease.)
Legislation: Smoke-free Areas

Running smoking in public places is a sound public health measure to protect the health of non-smokers. 

The issue of workplace bans is primarily one of labour legislation to protect the health of workers, who are exposed to passive smoking for long periods during their work shifts, whether this be in public or office buildings, restaurants or public transport.

Workplace smoking bans are effective in reducing exposure to passive smoking. Smokers who are employed in workplaces with smoking bans are likely to consume fewer cigarettes per day, are more likely to consider quitting, and quit at a greater rate, than smokers employed in workplaces with no or weaker policies.

A total ban works better than a partial ban. Most airlines are now smoke-free and the global trend is towards a safer, cleaner indoor environment in the home and public workplace.
WINNIPEG - Smokers looking to light up in Winnipeg’s restaurants, bars, or any other enclosed public space can now look forward to a hefty fine, thanks to a city bylaw which took effect Monday.

The bylaw covers all enclosed public places; it threatens a minimum $100 fine on individuals who attempt to smoke and a $500 fine for the owners of the establishment that allows them to do so.

Inspectors fanned out across the city on the holiday Monday with an eye on cracking down on the illegal smokers.

Serge Scrafield with Manitoba Conservation said the 10 provincial inspectors would be out in force Monday, but would likely put off issuing tickets until Tuesday.

“We can legally issue the ticket to either [the individual or owner],” he said. “However we would do that only if we felt the proprietor had taken all the steps that reasonably he or she could take, and if the problem still persisted then we would consider ticketing the individuals.”

The province is responsible for enforcing the bylaw in 70 per cent of the city, mostly the suburbs. The bylaw actually went into effect July 1, but the province delayed its enforcement for two months so it could hire more inspectors.

Scrafield hopes the delay may have allowed people extra time to get accustomed to the bylaw, meaning his inspectors will not have to issue too many tickets.
The class will be divided into two groups: prospective citizens with a vested interest in a proposed smoking ban, and a town council. The citizens will receive position cards. The town council may be elected or chosen. The teacher will act as the moderator.

**Directions for students with position cards:**
1. Read the news article about the imposed smoking ban in Winnipeg.
2. You will perform a role-play of a historical discussion, set prior to October 1, 2004, discussing the proposed smoking ban in your community.
3. You will receive a position card stating the role you will play in the discussion about the ban.
4. Decide what your position would be on this issue.
5. Prepare an argument to support your position by brainstorming and doing research. Collect relevant notes, references, and statistics. One of your sources must be a primary source. You may also include anecdotal information.
   Some ideas you might want to consider are
   - the economic benefits and liabilities
   - the related health issues and costs
   - the Charter of Rights and Freedoms issues
6. Prepare your point-form notes on index cards.
   - Use statistics and direct references to current and valid information in your argument.
   - Try to speak naturally rather than read. Be ready to answer questions. Prepare for this by predicting what you may be asked.
7. You may try to present a workable solution if you disagree with the ban.
8. Each person should be treated respectfully.

When the forum is over, hand in your research and speaking notes, a short evaluation of the points made by the other speakers, a bibliography, and a personal reflection about the process when the forum is over.

**Directions for the town council:**
1. You will listen to and evaluate the arguments presented.
2. You must do research and take notes on the issues involved in this debate so that you are prepared to listen actively.
3. During the debate, make notes about each speaker.
4. You may ask relevant questions.
5. After the forum is over, you will vote to decide who presented the most convincing argument. Evaluate each speaker; give one positive point and suggest one goal for future presentations like this. Discuss your choices as a group. Then, vote for the most convincing speaker.

When the forum is over, hand in your preparation notes, a bibliography, your notes on each speaker, your reasons for choosing the speaker you did, and a personal reflection about the process.

As a class, form groups of four made up of two people supporting the ban and two people against the ban. Discuss
- the process
- the pros and cons of each argument
- how the values of each interest group differ
- whether there could be ever be a viable solution that would satisfy both groups