



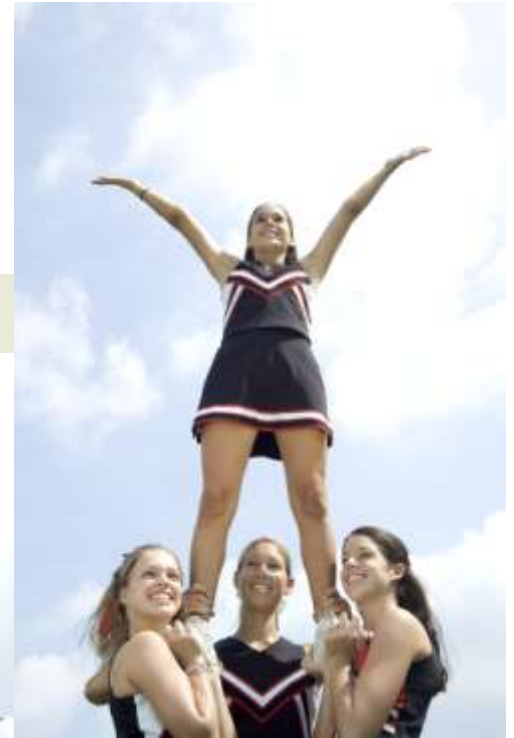
# Physical and Cognitive Development in Adolescence



[ Is adolescence really a time of “storm and stress”? Not really. ]

- Multi-cultural research by Daniel Offer shows that 73% of adolescents have a positive self-image.
- Most adolescents successfully negotiate their path from childhood to adulthood.
- Too many times, stereotypes about adolescents are negative.
- Adolescents are a heterogeneous group, however, and should not be discussed in broad generalities.

# Physical Changes



## ■ What physical changes occur in adolescence?

- **Puberty marks the beginning of adolescence.**
- Pubertal with rapid physical changes involving hormones.
- Menarche is a girl's first menstruation.
- Puberty is also triggered by body mass.
- Genetic factors are involved in puberty.
- Puberty involves the interaction of the hypothalamus, pituitary gland, and gonads.
- The onset of puberty varies among individuals.

○ **Most noticeable physical changes include:**

- Growth spurt occurs at age 9 for girls, 11 for boys.
- Girls increase in height 3.5 inches per year, boys about 4 inches.
- Pubic hair growth.
- Facial and chest hair growth in males..
- Breast growth in females.
- Increased height and weight.
- Sexual maturity.

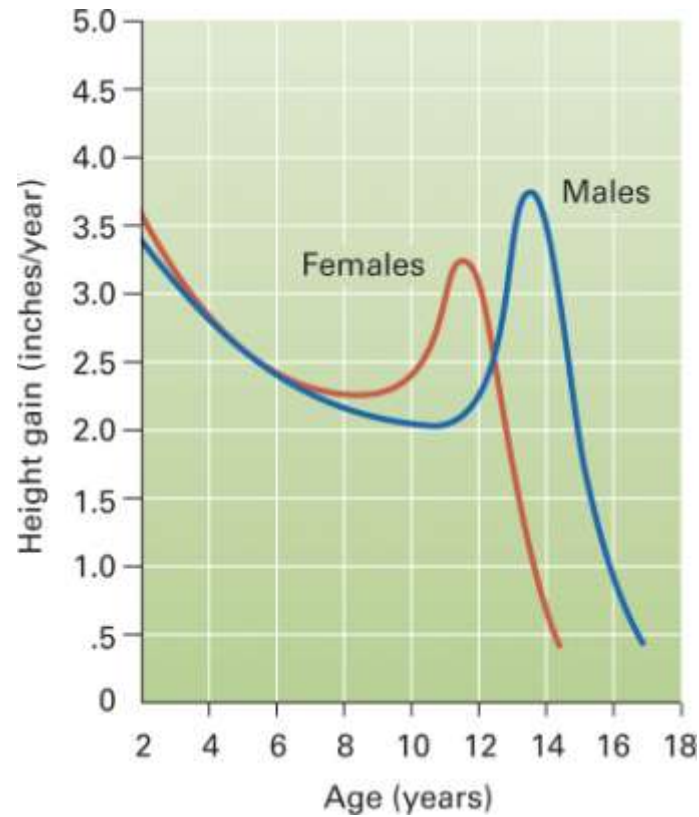
○ **Adolescent sexuality is initiated by:**

- First ejaculation, voice change, penis elongation, and testes development in males.
- Highly irregular menstrual cycles, rounding of breasts, and widening of hips in females.

# Adolescent Hormonal Changes

- The physical changes during puberty are controlled by hormonal changes.
- Testosterone is found in both the male and female body.
  - This hormone is known to control the sex drive.
  - It is found to increase eighteenfold in males during puberty and twofold in girls.
- Estradiol (female hormone) is found in both men and women.
  - It is found to increase eightfold in females and twofold in males during puberty.
  - Estradiol is released in females from the ovaries, whereas testosterone in females are known as androgens.

# [ Pubertal Growth Spurt ]





# Puberty

- Early onset of puberty can create risks for females:
  - Depression.
  - Eating disorders.
  - Use of alcohol, drugs, and/or tobacco.
  - Earlier dating and sexual involvement with males.
  - Possible lower educational attainment.
- Pubertal changes have a strong effect on the adolescent's body image, dating interest, and sexual behavior.





# [Early vs. Late Maturation for Boys]

- Research shows that early maturing boys perceive themselves more positively in adolescence and have better peer relationships.
- However when men reach their thirties, late maturing boys have a stronger sense of identity.

# Median Ages at Menarche in Selected Northern European Countries and the United States from 1845 to 1969

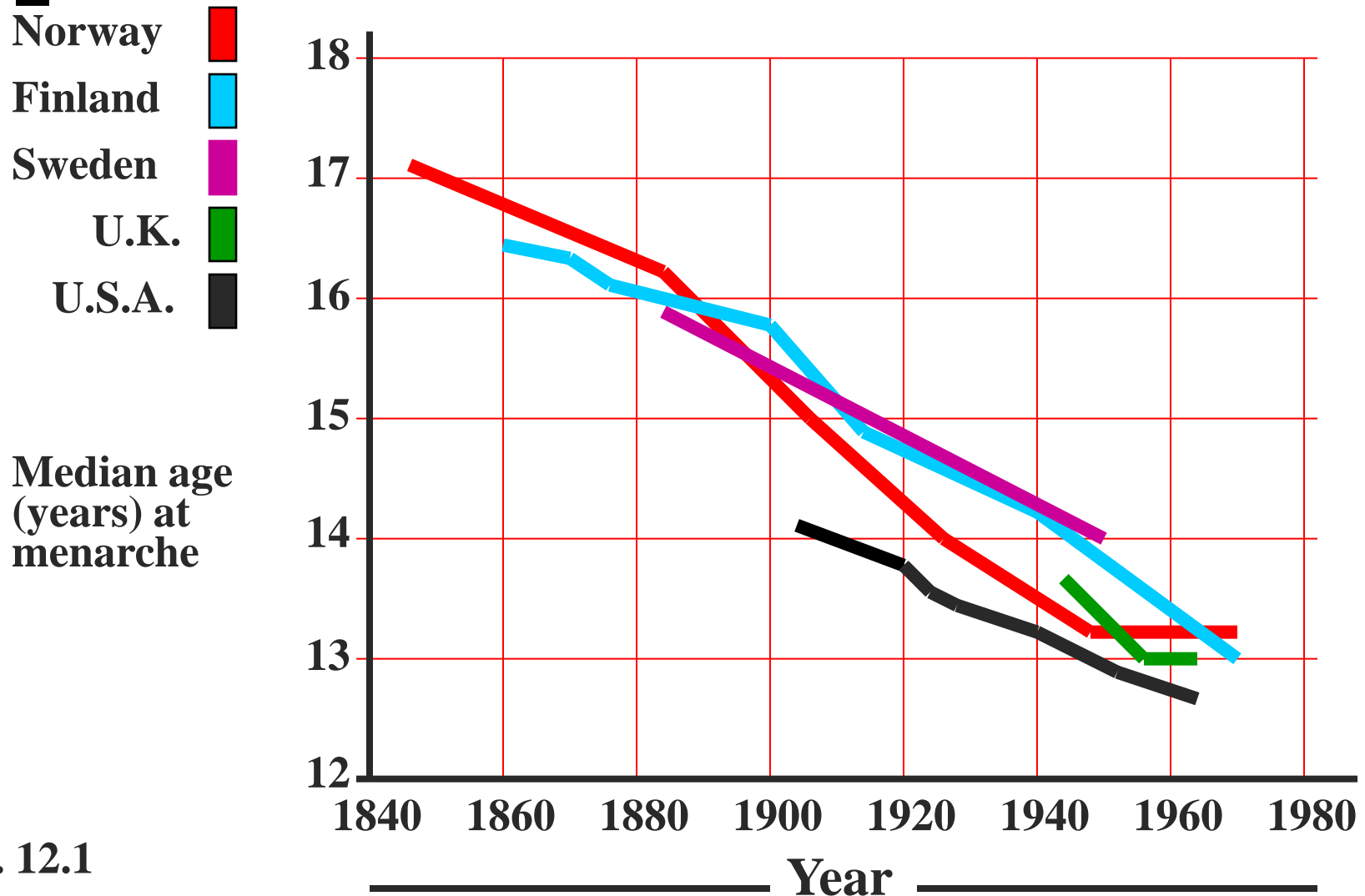


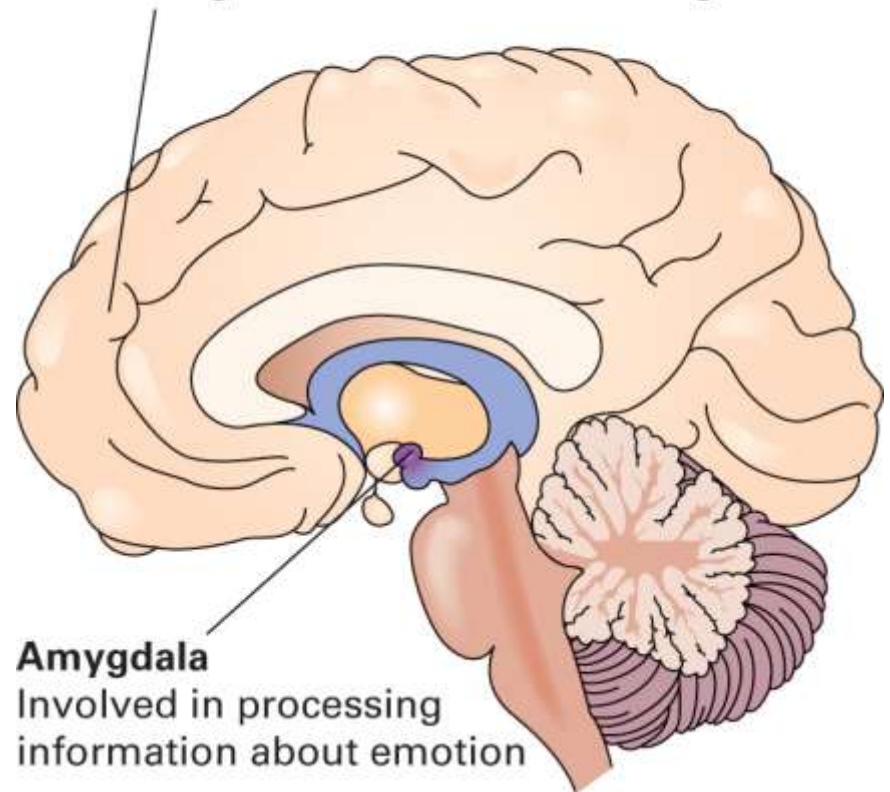
Fig. 12.1

# Brain Changes In Adolescence

- Along with the rest of the body, the brain changes during adolescence.
- Spurts in brain's electrical activity occurs at about 9, 12, 15, and 18 to 20 years of age.
- The amygdala, which handles processing of information about emotion, develops earlier than the prefrontal cortex, which is involved in higher-level cognitive processes.
- This means that the brain region responsible for acting responsibly, putting brakes on risky behavior, is still under “construction” during adolescence.

## **Prefrontal cortex**

Involved in higher-order cognitive functioning, such as decision making



## **Amygdala**

Involved in processing information about emotion

# Adolescent Sexuality

- Adolescent sexuality is a time of exploration, experimentation, sexual fantasies, and achievement of sexual identity.
- Adolescence is a bridge between the asexual child and sexual adulthood—reaction of each society may vary.
- Television and other media contribute to the sexual culture.
- Developing a sexual identity involves:
  - Sexual behavior
  - Indication of sexual orientation

# Adolescent Sexuality Continued

- Percentages of sexually active young adolescents in the United States vary greatly.
- Male, African American, and inner-city adolescents report being the most sexually active.
- Early sexual activity is linked to other risky behaviors and to contracting STDs.
- Self-regulation and parent–child relationships are two important factors in sexual risk-taking.
- Adolescents are increasing their use of contraceptives.
- Cross-culturally, the United States still has one of the highest adolescent pregnancy and birth rates.

# Cross-Cultural Comparisons of Adolescent Pregnancy Rates

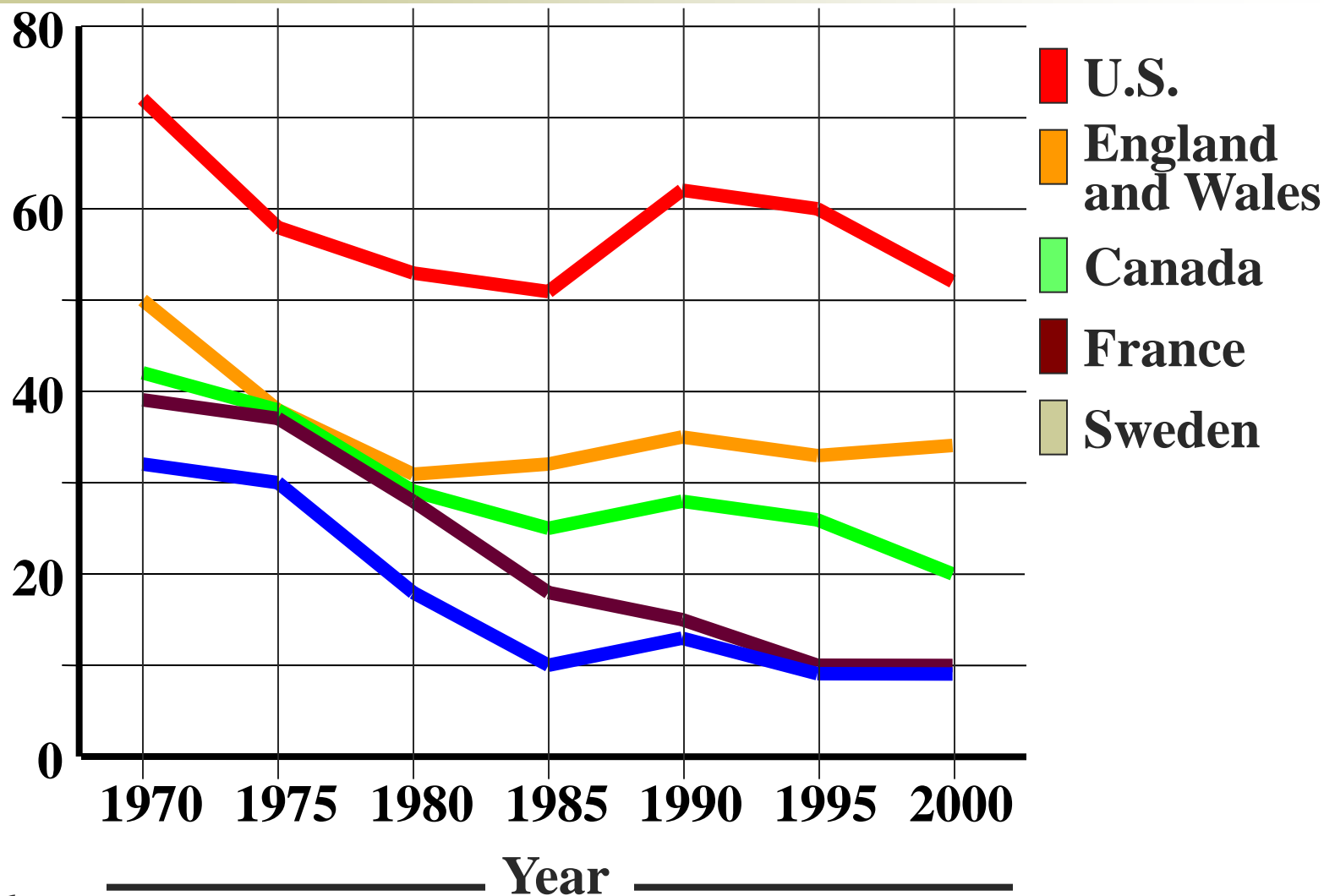
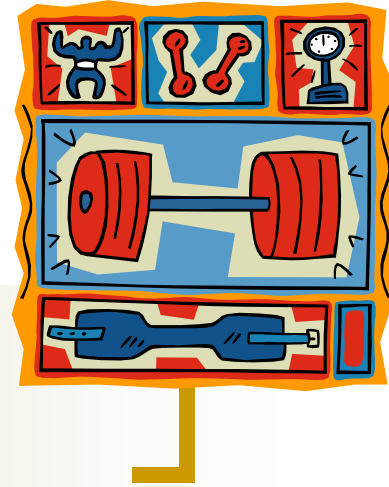


Fig. 12.6

# Issues in Adolescent Health

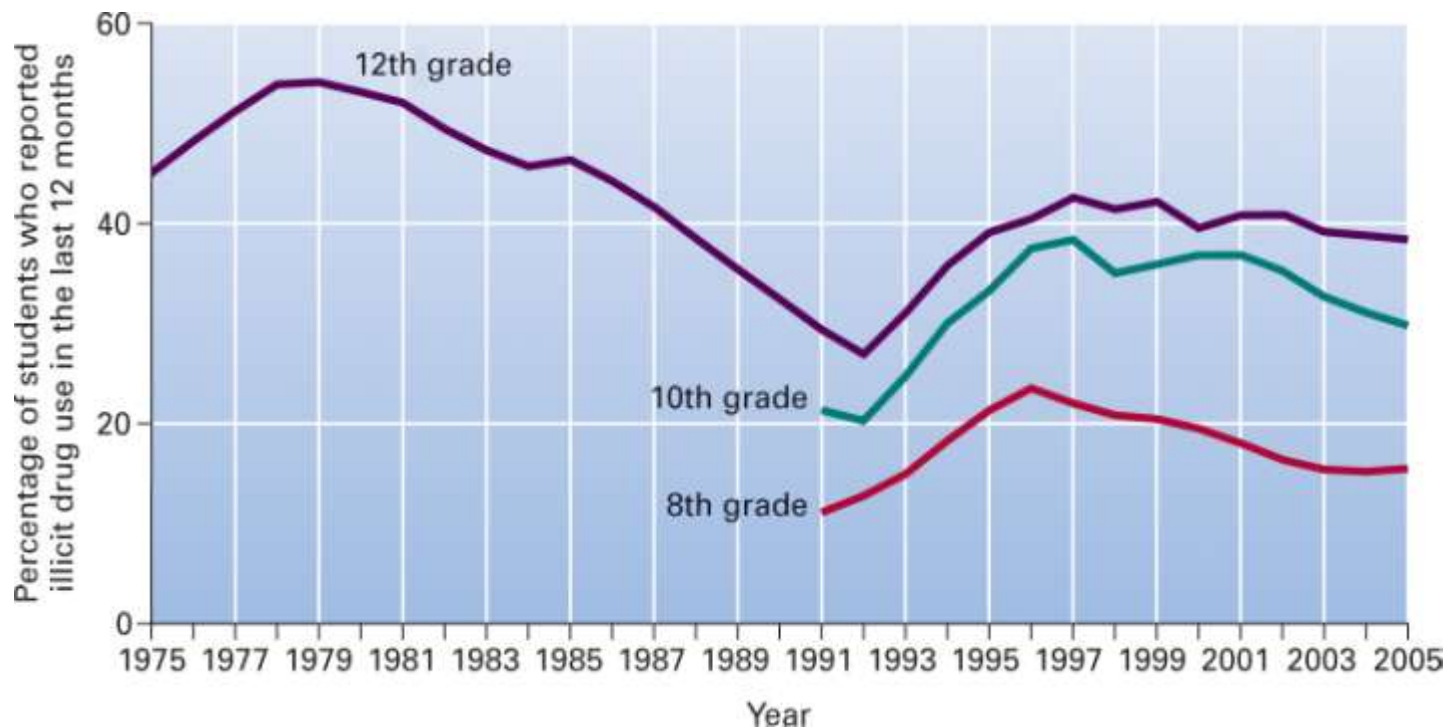




# What can be said about substance use and abuse among adolescents?

- Proportion of 10<sup>th</sup>- and 12<sup>th</sup>-graders who use illegal drugs declined in 1990s and first years of 21<sup>st</sup> century.
- But the U.S. has highest rate of adolescent drug use of any industrialized nation.
- Alcohol is the primary illegal drug used. Heavy drinking continues to be common.
- Cigarette smoking is a serious, preventable health problem.
- Use of painkillers is increasing (Vicodin, Oxycontin).
- Parents and peers influence drug use and smoking.

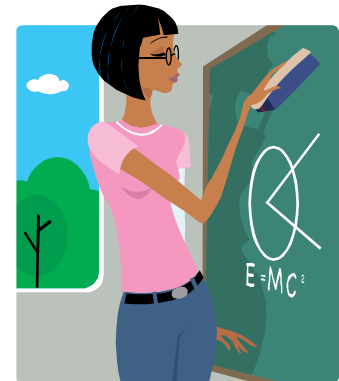
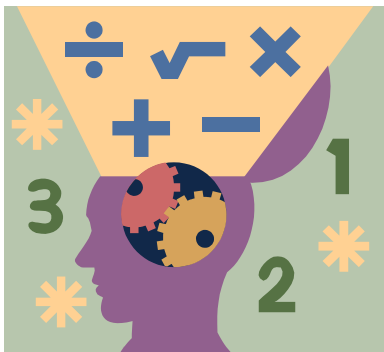
# Trends in Drug Use by U.S. 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup>-grade Students



## Issues with Eating: Eating Disorders and Obesity

- Families are important when adolescent substance abuse and negative consequences are evident.
- Eating problems and disorders are increasingly common in adolescence—most notably, anorexia nervosa and bulimia nervosa.
- Since the 1960s, a higher percentage of adolescents have become overweight.
- Most anorexics are White adolescents or young adult females from well-educated, middle- and upper-income families:
  - Stress results from not achieving high expectations.
  - Weight becomes something they can control.

# Adolescent Cognition



# Piaget's Cognitive Theory In Adolescence

- For Piaget, adolescence is the age of formal operational thinking.
- Adolescent cognition shows greater abstract quality in ability to:
  - Solve problems by verbal means alone.
  - Create make-believe or purely hypothetical situations.
  - Engage in extended speculation and test solutions systematically.
- Assimilation dominates development of thought.
- In later adolescence, accommodation returns to thinking and information-processing.

# Piaget Continued

- Adolescent egocentrism involves two types of social thinking: imaginary audience and personal fable.
  - Imaginary Audience- think that others are as interested in as they are of themselves and they make attempts to be noticed
  - Personal Fable- Adolescents have a sense of uniqueness and invincibility. Adolescent immerse themselves in fantasy (seen especially in their diaries)
- Invincibility attitudes are likely to be associated with reckless behavior such as:
  - Drug use.
  - Suicide.
  - Having unprotected sex.



- Adolescence is a time of increased decision-making.
- Situations are examined from multiple perspectives, and consequences anticipated.
- A strategy for improving adolescent decision-making includes parental involvement.
- Cognitive changes that improve critical thinking include:
  - Increased speed of information-processing.
  - Wider range of knowledge in variety of domains.
  - Increased ability to construct new knowledge.
  - Having more strategies to apply knowledge.