

Table 9.2 Piaget’s Stages: Focus on Adolescence

Age	Name of Stage	Description
0–2	Sensorimotor	The baby manipulates objects to pin down the basics of physical reality.
2–7	Preoperations	Children’s perceptions are captured by their immediate appearances: “What they see is what is real.” They believe, among other things, that inanimate objects are really alive and that if the appearance of a quantity of liquid changes (for example, if it is poured from a short, wide glass into a tall, thin one), the amount of liquid itself changes.
7–12	Concrete operations	Children have a realistic understanding of the world. Their thinking is really on the same wavelength as that of adults. While they can reason conceptually about concrete objects, however, they cannot think abstractly in a scientific way.
12+	Formal operations	Reasoning is at its pinnacle: hypothetical, scientific, flexible, fully adult. Our full cognitive human potential has been reached.

Concrete Operational Stage (page 166)

Definition: The stage of development that begins at about 7 years and ends at about 12 years characterized by the ability to think logically about concrete objects and situations.


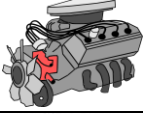






What kind of behaviors is typical of a child in the concrete operational stage of cognitive development (approximate age range is 7 to 12 years old)?

- They are less egocentric in their thinking.
- They can reverse mental operations.
- They can focus on two aspects of a problem.
- Thinking and the use of logic tends to be limited to concrete concepts (concepts and events that are tangible and can be related to their own experience and actual events).
- They can classify and organize concrete objects (e.g. oaks as trees), but not abstract ideas.
- Explanations tend to be very concrete and tangible.
 - “friendship is when someone plays with me”.
 - When asked “What can be done to end world hunger?”, children at concrete operations tend to responses such as “drop food from parachutes” or “grow more food”

- As seen in Chapter 6 ([page 177](#)), children begin to categorize themselves in terms of fixed labels (I'm the dumb kid, I'm the poor kid)
 - With fixed labels or descriptors, rigid stereotypes can be formed at this age and tend to be resilient against change.
 - Fixed labels and stereotypes are problematic for false and broad stereotypes such as women and African Americans can't do science or math ([page 177](#)).


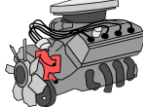
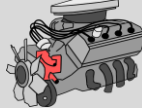
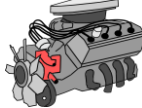















Formal operational stage (page 255)

If a child was asked to determine which factors influence the speed of a car:

• engine size* (small vs. large),		
• wheel size* (small versus large),		
• muffler* (present/absent),		
• color, or		
• tail fins (present/absent)		

Concrete Operations vs. Formal Operational stage

When solving problems, concrete operational children change more than one variable at time, where formal operational children change one at a time.

	Concrete Operations		Formal Operations	
	Before	After	Before	After
• engine size* (small vs. large),				
• wheel size* (small versus large),				
• muffler* (present/absent),				
• color, or				
• tail fins (present/absent)				
	Change the engine size, tire size and remove the tail fins		Change only the tire size	

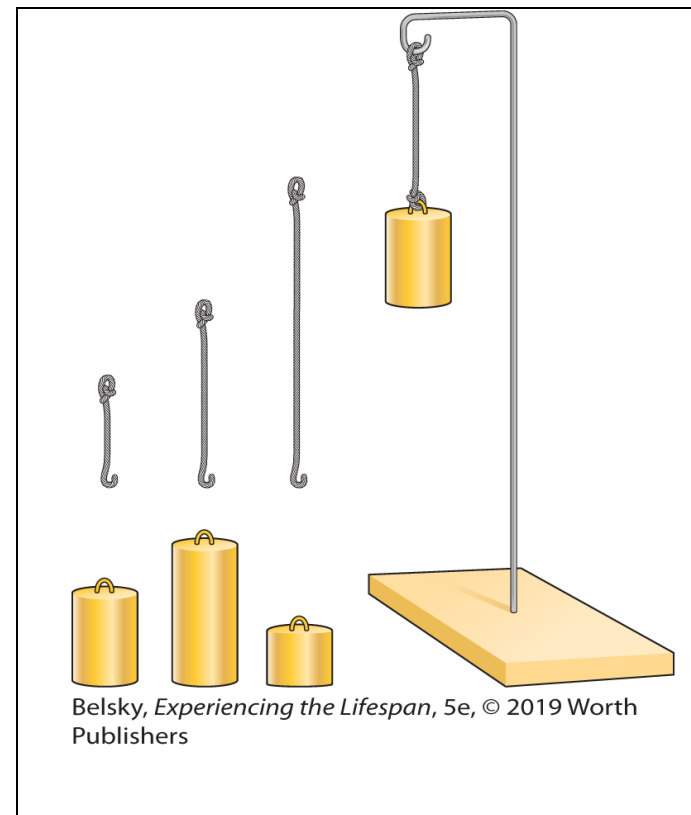
Concrete Operations vs. Formal Operational stage

The period (how long it take the pendulum to return to its original position, represented by the variable T) of a pendulum could be influenced by many variables such as the mass of the pendulum bob, the length of the string, the angle to which you raise the pendulum.

When determining what factors influence the period of a pendulum, concrete operational children will change multiple factors (length of the string and weight), while the formal operational child will change one at a time.

It turns out that angle and mass is not relevant for the period (T), only the length of the string for small angles less than 23 degrees.

$$T = 2\pi \times \left[\frac{\text{length of string}}{\text{gravitational constant}} \right]^{1/2}$$



Formal Operations

A formal operational thinker is able to think logically even when dealing with abstract concepts or hypothetical situations.

- Explanations tend to be more global and abstract.
 - When explaining friendship, a formal operations thinker will explain it in terms of
 - mutual trust,
 - empathy,
 - loyalty,
 - consistency and shared beliefscompared to a concrete operations thinker who explains it as “friendship is when someone plays with me”.
- Thinking abstractly continues through adulthood and varies individually.
 - Abstract thinking tends to be limited to one’s area of expertise or special interest.
 - The more diverse knowledge you have, it increases the likelihood you will think abstractly in different domains.

Abstract Thinking

One way to future wealth is compound interest. Compound interest is more abstract than simple interest, which makes it difficult to comprehend, apply and use. Winning the lottery is more concrete, but unrealistic. We tend to overestimate the likelihood of winning the lottery due to hearing about the winners, but not the losers (see availability heuristic).

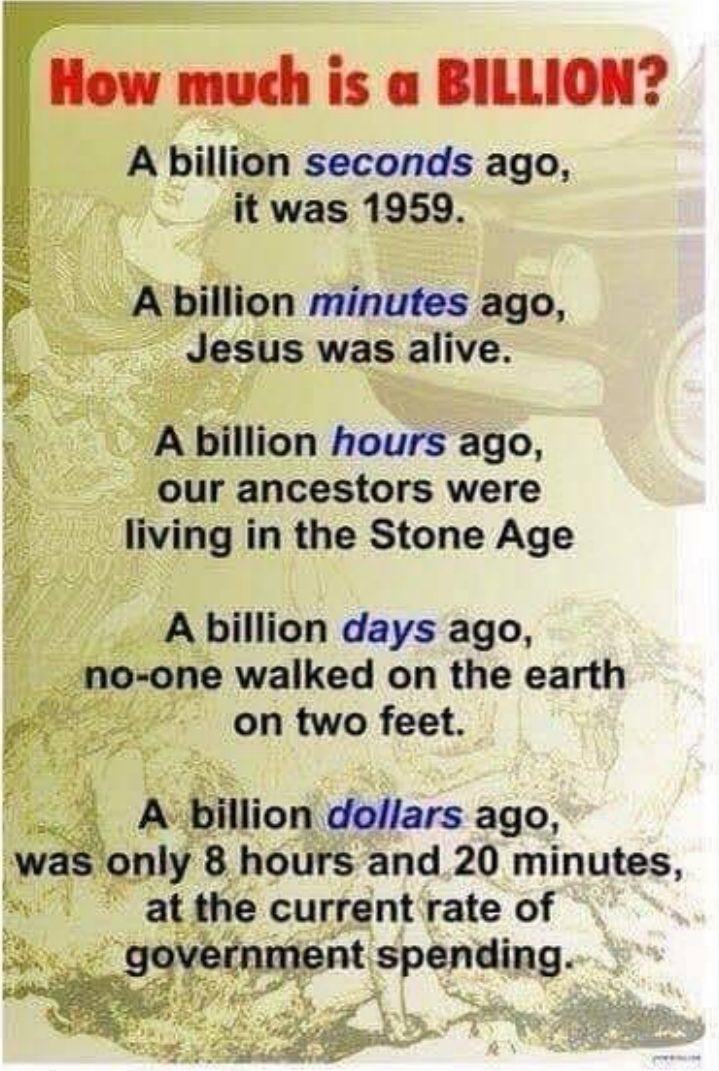
Investments that yield a gain 10% each year (this is a bit high, but makes the math easier) doubles about every 7.2 years. Therefore, an investment of \$1000 will yield about \$16,000 in 28.8 years.

	Starting Balance	10% gain	Ending Balance
year 1	\$1,000.00	\$100.00	\$1,100.00
year 2	\$1,100.00	\$110.00	\$1,210.00
year 3	\$1,210.00	\$121.00	\$1,331.00
year 4	\$1,331.00	\$133.10	\$1,464.10
year 5	\$1,464.10	\$146.41	\$1,610.51
year 6	\$1,610.51	\$161.05	\$1,771.56
year 7	\$1,771.56	\$177.16	\$1,948.72
year 8	\$1,948.72	\$194.87	\$2,143.59

On the opposite side, compound interest is a an easy way to stay in debt.

Contrasting with concrete operations, one might be more likely to think that winning the lottery, one big score, one big bonus, one big deal, etc. is a way to wealth.

Making the Abstract Concrete



How much is a BILLION?

A billion *seconds* ago,
it was 1959.

A billion *minutes* ago,
Jesus was alive.

A billion *hours* ago,
our ancestors were
living in the Stone Age

A billion *days* ago,
no-one walked on the earth
on two feet.

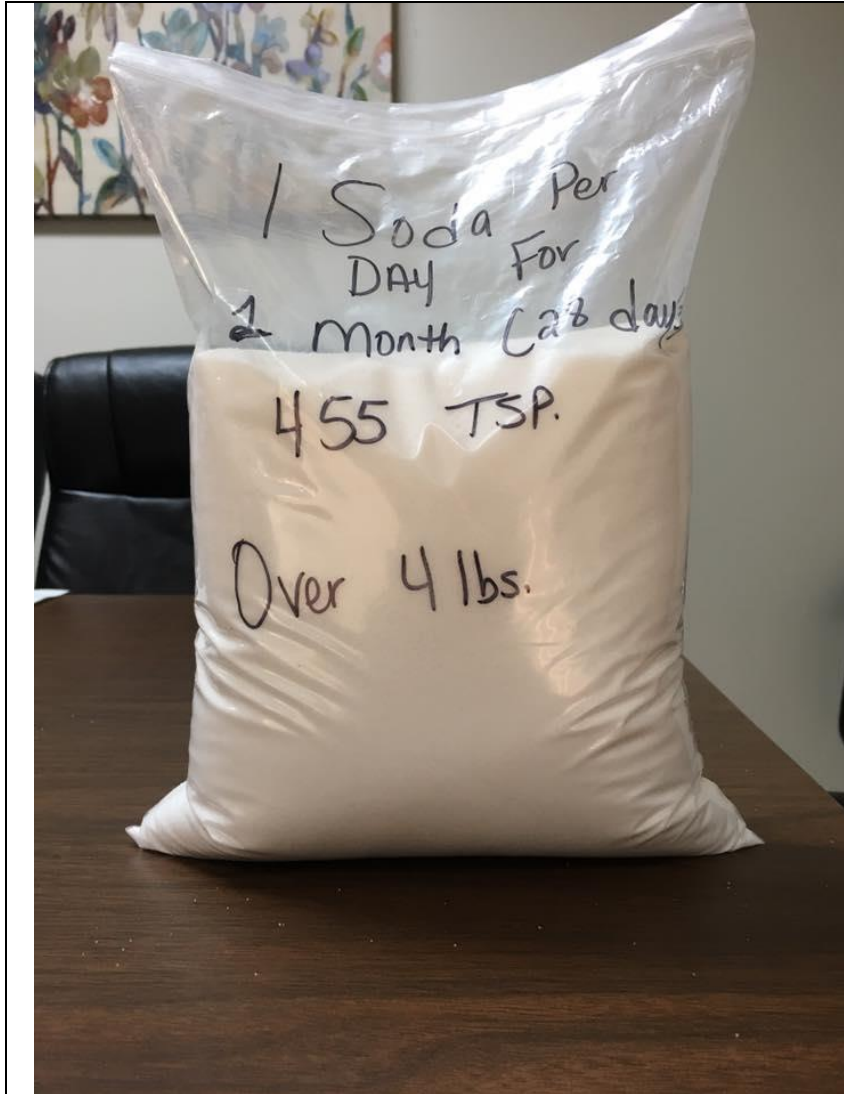
A billion *dollars* ago,
was only 8 hours and 20 minutes,
at the current rate of
government spending.

The infographic features a background illustration of a woman in a classical-style dress sitting on a stone ledge, with a large stone wheel or gear partially visible behind her. The text is overlaid on this background in a clean, sans-serif font.

Making the Abstract Concrete

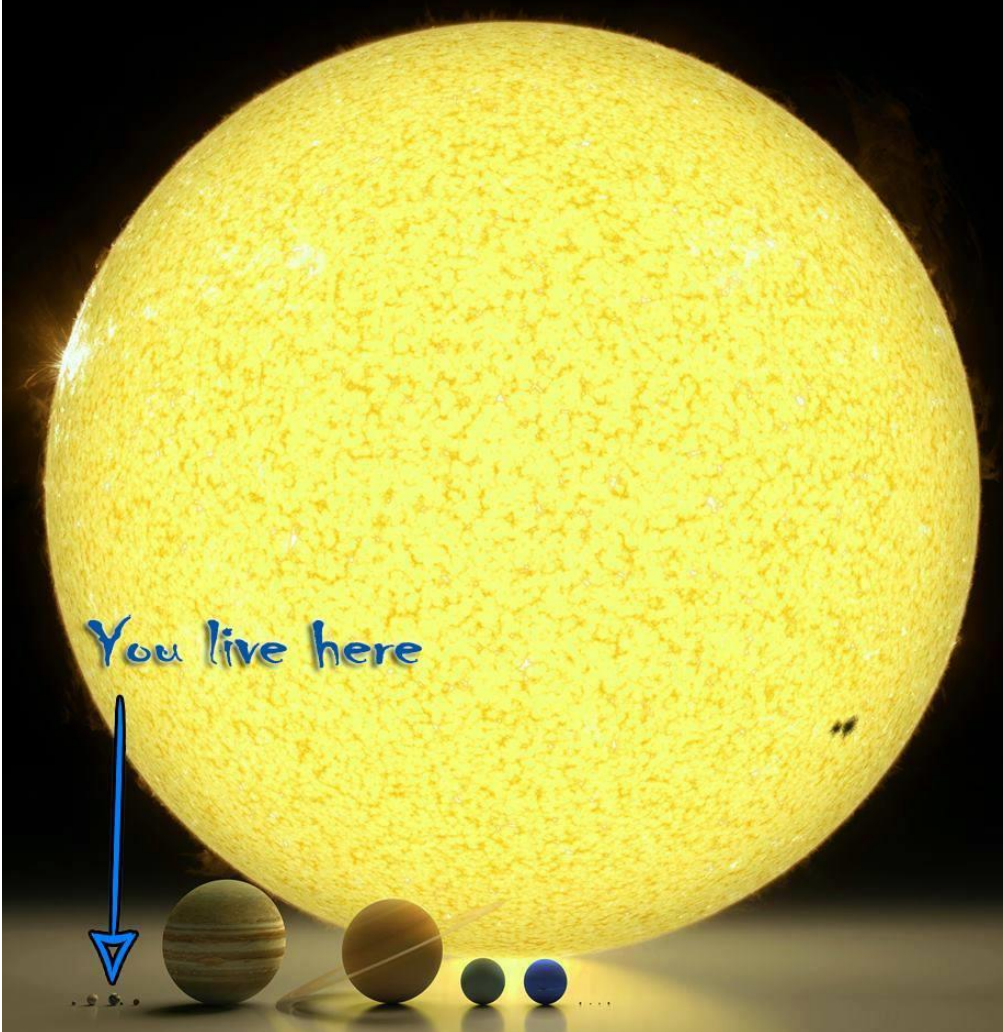


Making the Abstract Concrete



A 20 ounce bottle of Dr. Pepper has 64 grams of sugar.

28 cans of Dr. Pepper would have 1792 grams (1.792 kg) of sugar or 3.95 pounds of sugar

Concrete	Abstract
 <p data-bbox="321 922 657 979">You live here</p>	<p data-bbox="1465 362 1707 410">Diameter of</p> <p data-bbox="1350 475 1833 792">Sun = 864,340 mi Mercury = 3,031.9 mi Venus = 7,520.8 mi Earth = 7,917.5 mi moon = 2,158.8 mi Mars = 4,212.3 mi</p> <p data-bbox="1371 857 1833 1125">Jupiter = 86,881 mi Saturn = 72,367 mi Uranus = 31,518 mi Neptune = 30,599 mi Pluto = 1,476.8 mi</p>

In addition, we have a poor grasp of trillions of dollars (the U.S. total national debt) or large distances (the distance from the Sun to Earth is 93 million miles and the average distance from the Earth to Mars is 140 million miles—the farthest is 34 million miles and the closest is 250 million miles)

Storm and Stress

Are adolescents exceptionally socially sensitive?

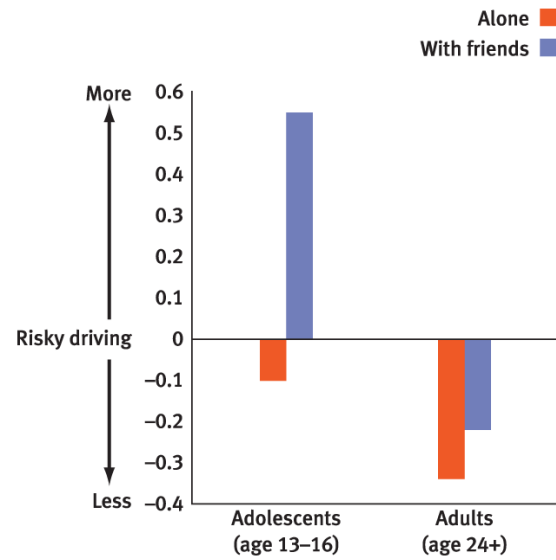
Being socially accepted is important for the adolescent. Rejection is avoided (tie to negative reinforcement and social rejection). Adolescents are quite sensitive to social situations and being accepted by their peers.

Having a hostile attributional bias (see [Chapter 6, p 182](#), the tendency for highly aggressive children to interpret benign events as threatening), and/or behaving in a way that is inconsistent with gender norms may increase the risk of social rejection (see [Chapter 6, p 186](#)).

Storm and Stress

Adolescents are risk takers

Adolescents are risk takers--especially in the presence of others (see page 261).



Belsky, *Experiencing the Lifespan*, 5e, © 2019 Worth Publishers

Are adolescents highly emotional and/or likely to be emotionally disturbed?

Adolescents are more emotionally intense than adults as well as intense shifts in emotions triggered by life events, but not likely to be emotionally disturbed (e.g. anxiety disorders or mood disorders).

Table 9.5: Predicting Whether a Child is Prone to Teenage Storms or to Flourish: A Section Summary Checklist

Threatening Thunderclouds
1. Does this child have emotion regulation difficulties and is he failing socially?
2. Does this child have distant or conflict-ridden family relationships?*
3. Does this child live in an environment where risk-taking is prized, or is this person being raised in a disorganized, low collective-efficacy neighborhood?
Sunny Signs
1. Does this child have good executive functions and a special talent (see chapter 6)?
2. Does this child have parents who encourage his or her gifts?
3. Does this boy or girl have an adult mentor?

* They may learn to be aggressive from their role models

Which Teens Get into Serious Trouble?

There are three factors associated with adolescents having future difficulties

At-Risk Teens have prior Emotion Regulation Problems (biological)

Early externalizing tendencies during elementary schools makes it difficult for young children to monitor and evaluate their own behavior. Once alienated by mainstream kinds, they tend to find acceptance with other antisocial people who are also rejected by society.

At-Risk Teens Tend to have Poor Family Relationships (Social)

Feeling alienated by your parents predicts difficulties through adolescence. These teens have an insecure attachment and want to be listened to and respected. They need to know they are unconditionally loved ([page 266](#)). Unconditional love is accepting them for who they are as a person. Generally, this does NOT mean permissive parenting. You can admonish a behavior without admonishing a child.

Carl Rogers: Unconditional Positive Regard

Rogers did not advocate permissive parenting. You can disapprove of a child's behavior, but not reject the child.

Driving 100 m.p.h. can be dangerous to yourself and others around you. What are some possible options for disapproving of the boy's behavior, but not rejecting him?



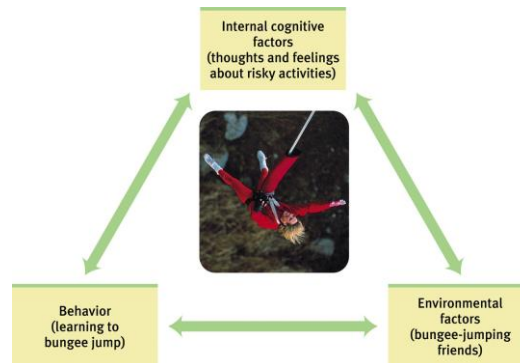
You might have responses such as I understand your decision, but I disagree with it. You reject the behavior but accept the person. E.g. Speeding in a school zone is stupid versus you are stupid driver.

Children who feel alienated from their parents are less likely to talk to their parents about difficulties and/or activities (whether benign or destructive), which feeds the alienation even more.

Having said that, the adult is the one who bears more responsibility for developing, encourage, and modeling good communication with the adolescent. The adolescent is less responsible for developing, encouraging and modeling good communication with their parents. As parents, one should start early and develop a good relationship so that when difficulties do arise, it is easier to handle the difficulties.

At-Risk Teens Life in a Risk-Taking Environment (Social)

If you live in a family that has older family members engaging in hazardous behavior, the adolescent is more likely to engage in that behavior. Likewise, if the teen lives in a disorganized, low-efficacy community ([page 267](#)), the risk of getting into trouble increases.



Which Teens Flourish?

- Teenagers thrive when they have superior executive functions (see [chapter 6](#)),
 - Learning/retention of information through rehearsal early in life, later elaborative rehearsal,
 - selectively attend to relevant information, and ignore irrelevant information, and
 - inhibiting an automatic response, and emotional regulation).
- When parents (or a “teacher”, or mentor) can identify and encourage an adolescents unique strength, they flourish.
- If the parent, “teacher” or mentor is caring and shares many personality characteristics with the teen.

A flourishing teen does NOT mean “staying out of trouble”. Flourishing adolescents engage in risk-taking behaviors. Those with high achievement tend to take risks. These are not reckless risks, but risks where the outcome is uncertain and done in a caring and safe manner.

Table 9.7: Tips for Parents of Teens

1. Understand that strong emotions may not have the same meaning for your teen as for you. So try not to take comments like “I hate myself” or “I’m the dumbest person in the world” very seriously. Also, during the early teen years, new research—discussed later in this chapter—suggests it’s normal for your child to become secretive and rebellious. But just because your teen gets furious at you, don’t think she doesn’t love you.

2. Understand that, while sampling forbidden activities is normal, if your teen is getting involved in genuinely illegal activities or seems seriously depressed, you do need to be concerned.

3. Understand that your child’s peer choices (and peer-group status) offer good hints about his behavior, and that striving to be in the “popular crowd”—while normal—can have unpleasant consequences.

4. Roll with the punches, encourage your child’s passions, and enjoy your teenager!