

Multiple Intelligence Theory



IN BIKE EDUCATION



Instead of trying to determine how smart you are, let's start with the question, "how are you smart?"

In 6th grade I attended a Waldorf School. In science class we painted the intricate structures of leaves we'd collected. We translated poetry into body movements in a class called eurhythmy. In German class we sang songs about coffee, learned to Viennese Waltz and made German baked goods. A year later I switched to a public school. No more evaluations of my woodworking and writing, I was graded on multiple choice tests. In mathematics we did worksheets, and every sport in gym class was highly competitive.

Sometimes I thought I was stupid because I didn't excel in math or science. Sometimes I was considered weak for being more interested in collaborative activities than competitive ones. Sometimes I was called eccentric for wanting to touch and examine plants, or turn thoughts into drawings.

Ten years later I learned about Multiple Intelligence Theory. Twenty years later I started thinking about my education and realized that the majority of it was focused on test taking, not building diverse skills or interdisciplinary learning.

I know now that verbal-linguistic intelligence and logical-mathematical intelligence are only 2 of the 9+ recognized intelligences. I am intelligent in a multitude of ways and I'm just beginning to learn how to learn.

-Sylvie

After studying a multitude of people across many cultures, psychologist Howard Gardner identified 9 intelligences. These intelligences may be learned, or innate. They often interact with each other and can be applied across disciplines.

- Verbal- Linguistic
- Musical
- Logical-Mathematical
- Visual-Spatial
- Bodily-Kinesthetic
- Interpersonal
- Intrapersonal
- Naturalistic
- Existential

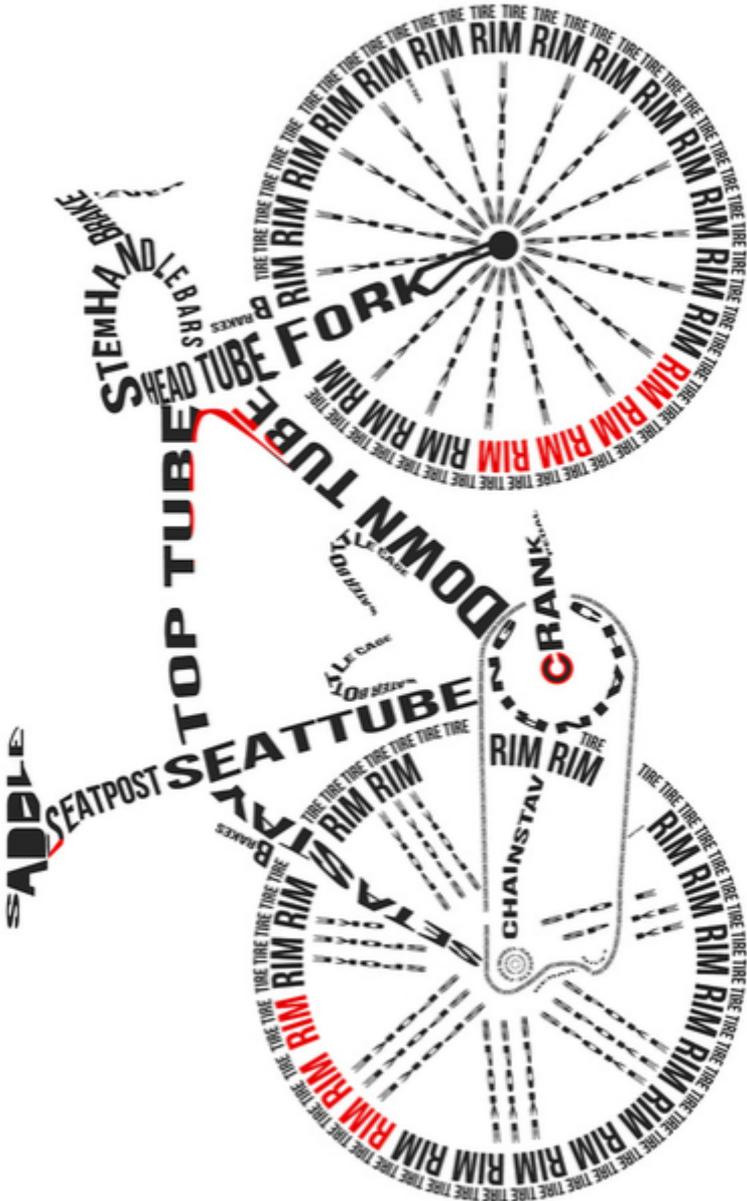


Bonus: Develop your intrapersonal intelligence by considering the questions that are linked with each intelligence and how other people might respond.

Take a short self-assessment at the end of this zine!

Verbal-Linguistic Intelligence

CAN YOU COMPREHEND SHOPTALK?
DO YOU KNOW AND UNDERSTAND BIKE
NOMENCLATURE?



GLOSSARY OF BIKE TERMS

bonk - (v.) When you suddenly lose energy and feel like you can't keep riding.

cadence - (n.) The number of crank rotations in one minute.

clipless pedals - (n.) Unlike toe clips or toe cages, clipless pedals connect to a cleat in the rider's shoe.

drivetrain - (n.) The components that propel the bike (chain, cranks, chain ring, cassette, derailleurs).

endo - (n.) The action of having the bike go "end over end," when the front wheel stops and the back wheel lifts up.

flex - (n.) Flexibility in the bike frame. Often referenced when comparing bikes.

granny gear- (n.) A really easy gear (a small chain ring).

groupo - slang (n.) A complete matching set of components (brakes, derailleurs, cranks, etc.)

kit - (n.) Cycling jersey, shorts, socks, gloves, etc. **lug** -(n.) The piece of metal that joins two tubes on a bike frame. **peloton** - (n.) The main group of riders in a race.

roll-out - (n.) The distance that the bike moves with one complete pedal rotation.

slicks - (n.) Tires with no tread. **taco** -(n.) A wheel that is bent like a taco and cannot be fixed.

true - (adj.) When the rim of the wheel is perfectly straight and round.

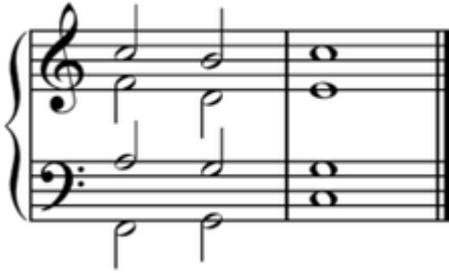
true - (v.) To straighten the wheel by adjusting spoke tension.

wrench - (v.) To fix bikes.

wrench - (n.) A bike mechanic.

Musical Intelligence

WHAT SHOULD YOUR BIKE SOUND LIKE?
HOW CAN YOU USE MUSIC TO SUPPORT
YOUR CYCLING EXPERIENCE?



In music theory, “rhythmic cadence” is the rhythmic pattern that indicates the end of a phrase. It may be deemed “weak” or “strong.”

In cycling, cadence is the number of pedal and crank rotations per minute. An ideal cadence is between 60-100 revolutions per minute.



MUSIC TO RIDE TO

Cycling is Fun	Shonen Knife	
Biking	Frank Ocean	
La Bicicleta	Shakira and Carlos Vives	
Bicycle	Shunguzdo	
Ma bicyclette	Andrew Huang feat. Side Pony Nation Filous feat. klei	
My Bike	The Bennies	
The bicycle song	Mark Ronson	
Bicycle	Filous feat. klei	
C'mon let me ride	Skylar Grey feat. Eminem	

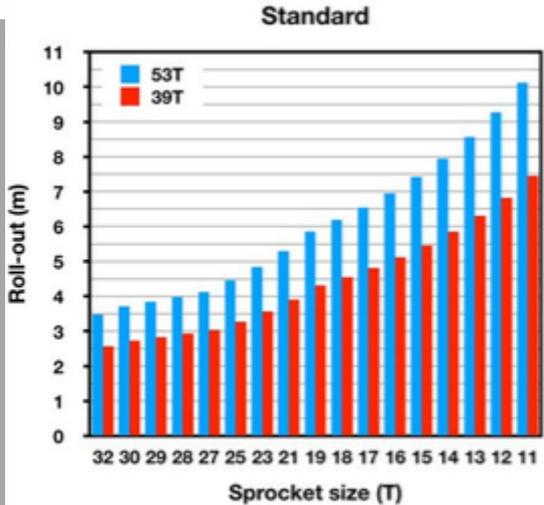
Logical-Mathematical Intelligence

HOW DO GEAR RATIOS RELATE TO ROL-
OUT?

HOW DO YOU SIZE A BIKE AND FIND THE
RIGHT FIT?

Gear Ratio =

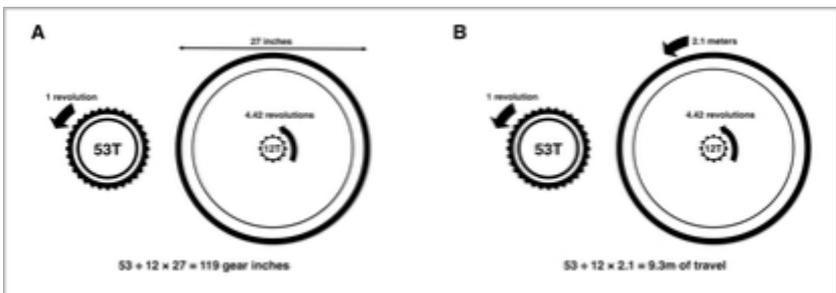
Number of Teeth in
Chain Ring
÷ Number of Teeth in
Rear Cog



Roll-out = Diameter of the Rear Wheel x Number of
Teeth in Chain Ring ÷ Number of Teeth in Rear
Cog x π

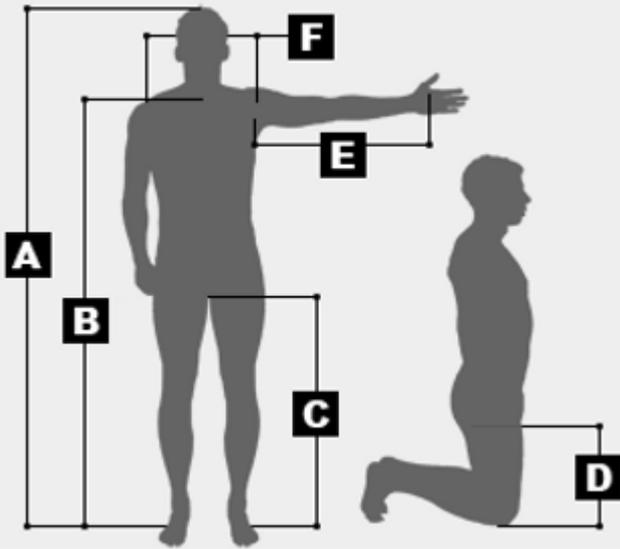
Speed (km/h) = Roll-out/1000 x cadence (rpm) x 60

Speed (miles/h) = Gear inches/63, 360 x Pi (3.14159) x
cadence (rpm) x 60

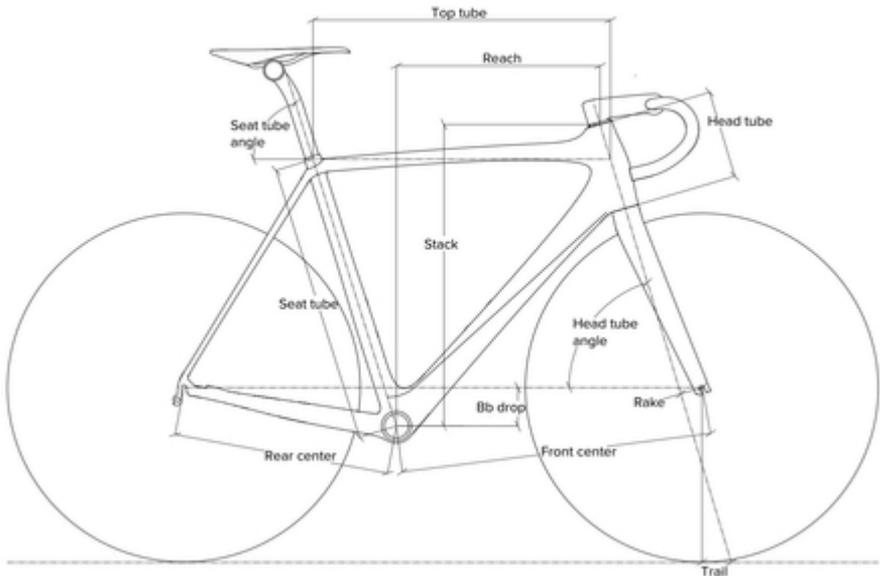


Logical-Mathematical Intelligence

Measurements you'll need to fit your bike to your unique body:

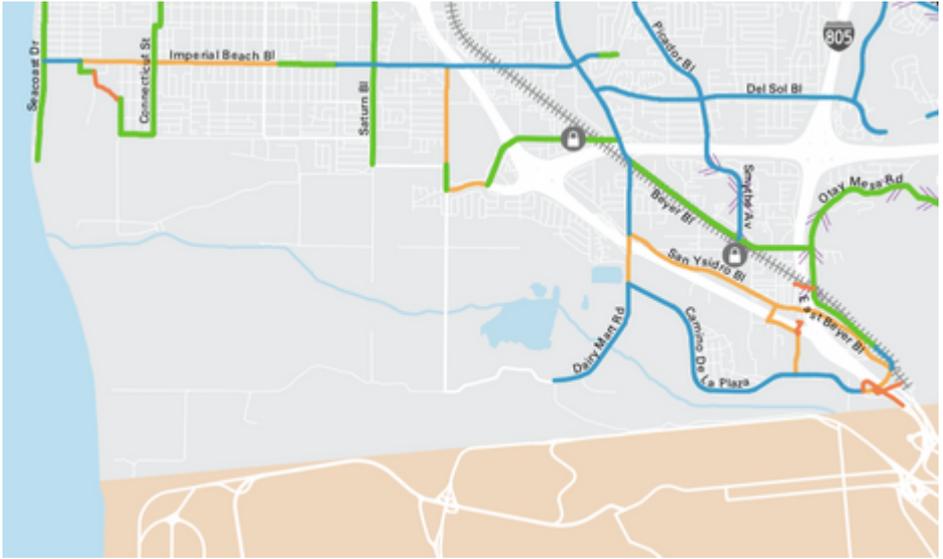


Measurements and angles to know on our bike:



Visual-Spatial Intelligence

CAN YOU VISUALIZE ROUTES?
HOW DO HANDS ON EXPERIENCES AFFECT
YOUR LEARNING?



Bikeways in the San Diego Region

multi-use path

A completely separate path for shared use by bike riders, pedestrians, and other non-motorized users with minimal vehicle crossings. Some paths may have restricted access or speed limits.

bike lane

A striped lane for one-way bike travel on a street or highway.

bike route

A shared right-of-way designated by signs only, where bike riders share the roadway with motor vehicles. Also includes streets with "sharrows" or shared lane markings.

freeway shoulder bike access

Some freeway shoulders are open to bike riders. Use of freeway shoulders by inexperienced bike riders is not recommended. Obey all regulatory signs and exit the freeway when required.

other suggested routes

These suggested routes provide additional connections and are not official bikeways. Bike riders should use caution in choosing routes appropriate for their skills and equipment.

bikeways coming soon

Near-term bikeways planned by SANDAG.

steep routes

These are bikeways with steep sections that may be difficult for some bike riders. Arrows point uphill.



Consider the different ways that we can explore gears...

- What does it feel like to be in the wrong gear?
- On a single speed bike, how do your pedals spin when you ride uphill versus downhill?
- What numbers do your shifters say?
- Where is your chain when you're in an easy gear?



Bodily-Kinesthetic Intelligence

WHAT DOES IT MEAN TO BE "MECHANICALLY
INCLINED?"

HOW DO YOU MOVE YOUR BODY WHEN YOU
TURN YOUR BIKE ABRUPTLY?



I once saw a bike messenger in Canada ride up to a sidewalk at speed, skid stop with his right pedal down on the curb and hop off his bike like it was a diving board. He'd positioned that pedal so that his bike was balanced, as if leaning on a kickstand. He went in and out of a building just as gracefully and before I knew it he was pushing his bike away from the curb, throwing a leg over the saddle and riding away.

I've never seen someone ride more beautifully.

CROSS TRAINING SPORTS OF CYCLING



If you didn't grow up fiddling with contraptions or taking things apart, you might feel clumsy with tools. Sometimes our perceived sex dictates what experiences we have and what skills we're taught. Despite generally having smaller hands, which ostensibly leads to better manual dexterity, women are not usually exposed to mechanical skills like bicycle repair.

Interpersonal Intelligence

HOW CAN YOU MAKE A GROUP RIDE FEEL LESS
INTIMIDATING TO AN AMATEUR BIKER?
WHY ARE DRIVERS SOMETIMES AGGRESSIVE
AROUND CYCLISTS?

Facts about humans:

- We imitate behaviors, sometimes without realizing it.
- When we feel threatened our body goes into flight or fight mode, which stifles our ability to be logical.
- Fear is often translated into anger.
- We think strangers are less complex than we are.
- We're generally more careful around people that we think are weak.



¿ Do car drivers make you frustrated?

¿ Do you want to flick them off when they cut you off?

¿ Do you feel unsafe on the road that you have just as much a right to?

A tip for safer cycling

WAVE TO PEOPLE IN CARS.

Scenario: You're riding down the road and you've got the right of way, but people are driving up to the intersections in their cars and pulling out in front of you, cutting you off, or speeding past you.

X *Making eye contact with drivers isn't enough*
If they're staring blankly ahead, they may not see your subtle eye communication.

X *Moving to the far right doesn't make you safer.*
If you move over too far to accommodate a disrespectful driver you'll be biking in the "door-zone" or in the grit in the shoulder.

DO THIS: Wave & smile at every person who is stopped at an intersection or passing you on the road.

They might think they know you and drive more cautiously.

If they wave back you know that they actually saw you.

They might recognize you're a human being, which may lead them to respect your space on the road more.

Intrapersonal Intelligence

WHERE DO YOU FIT INTO CYCLING CULTURE?
HOW ARE OTHER PEOPLE AFFECTED BY WHERE
AND HOW YOU RIDE YOUR BIKE?

An abridged and slightly offensive list of the types of cyclists from *The Bike Snob.**

THE ROADIE

THE LOOK

Bike jersey, spandex shorts, above ankle socks, tiny cycling cap.

THE BIKE

Drop bars, carbon fiber, sleek saddle, clipless pedals.

THE ATTITUDE

Abides by the cycling codes, snobby and aloof, obsessed with aerodynamics, always looking for a deal on bike parts, loves energy goo and early mornings.

THE MOUNTAIN BIKER

THE LOOK

Surfer style, shorts, sunglasses, shin pads or high socks, trucker caps, branded hoodies on rest days.

THE BIKE

Chunky frame, big shocks, bright colors, wide handlebars.

THE ATTITUDE

Uses words like “gnarly,” “stoked” and “flowy.” Laid back, sedate, very interested in soil types, enjoys jam band music. Dog lover and beer snob.

THE URBAN CYCLIST

THE LOOK

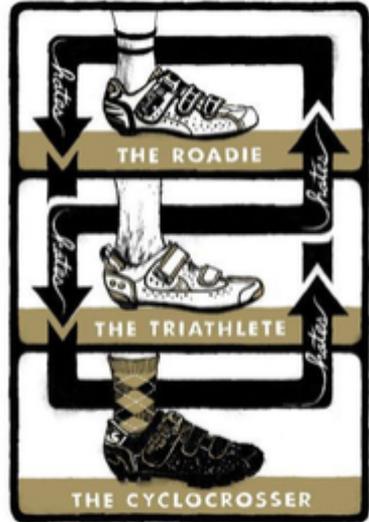
Punk style, ironic t-shirt with cut off sleeves, messenger bag, jean shorts, tattoos, keys clipped to belt loop.

THE BIKE

Fixed gear, maybe covered in stickers, narrow handlebars, Velcro toe straps.

THE ATTITUDE

Trendy, hipster types, with a lot of opinions, loves vintage bikes and anything retro, a little pompous.



THE CONTRAPTION CAPTAIN

THE LOOK

Unkempt or outdated clothing, hi-vis outerwear, cycling gloves or goggles.

THE BIKE

Recumbent, belt driven, bamboo frame, newest style of ebike, anything strange and superior to typical bikes.

THE ATTITUDE

Sense of superiority or extreme intellect that oozes out of them. Shows up at social events just to be noticed on their weird bike. Have they told you about their internal gears?

Naturalistic Intelligence

WHAT KIND OF TERRAIN DO YOU LIKE TO RIDE?
 WHAT HAZARDS MIGHT YOU ENCOUNTER IN
 YOUR ENVIRONMENT?

Is This For You?

Find the right cross-country singletrack trail grade for your abilities

Singletrack trails		
Grade	Suitable for:	Trail
 Green: Easy	Beginners in good health with basic bike skills. Most types of bike.	Relatively flat & wide.
 Blue: Moderate	Riders in good health with basic off-road riding skills. Basic mountain bikes.	Some "single-track" sections & small obstacles of root & rock.
 Red: Difficult	Proficient mountain bikers with good off-road riding skills & fitness. Good mountain bikes.	Challenging climbs, tricky descents & technical features such as drop-offs and large rocks.
 Black: Severe	Expert mountain bikers with high level of fitness. Quality off-road mountain bikes.	Greater challenge & difficulty. Expect large & unavoidable features.
 Mountain biking is a potentially hazardous activity carrying a significant risk.		



-	←—————	Travel	————→	+
-	←—————	Weight	————→	+
?	←—————	Price	————→	?

Solutions

TO BIKE AND BODY TROUBLE ON THE TRAIL

Problem	Additional challenges	Short term Solution
Flat tire	No spare tube or patch kit	Fill your tire with enough grass or leaves to make it stiff.
Rusty chain or Stiff chain links	No chain lube	Motor oil or castor oil is an ok substitute. If you use WD40 to loosen stiff chain links, be sure to wash it off and apply oil afterwards.
Cut yourself riding	Not enough gauze or medical supplies.	Turmeric helps clot blood fast. Honey is antibacterial.
<u>Gotta poop!</u>	No bathroom, no toilet paper	Dig a 6" hole with a stick. Do your duty in the hole, use leaves, rocks or sticks to wipe. Bury everything in the hole and cover it.
Broken spoke	No replacement spoke	Twist the broken spoke around the next closest spoke on the same side so that it is adding tension to the rim.



Existential Intelligence

HOW IS THE WORLD IMPACTED BY CYCLING?
WHY DOES REPRESENTATION MATTER IN
CYCLING?

Women are an “indicator species.” When women feel comfortable riding, that indicates that people generally feel safe on the roads. One way to encourage people to ride is through education and empowerment. Learning maintenance skills or connecting with like-minded riders may be empowering and motivating.

The more that people ride, the more confident they’ll become. As their skills develop they’ll become more self-reliant, allowing them to ride more often and live more sustainably.

Do you believe that bikes are a solution to climate change?



More people on bikes means fewer people in cars. You may not identify as a woman, but there is value in getting folks who are unlike you interested in riding bikes.

Existential Intelligence

"I sometimes say that these are questions that transcend perception; they concern issues that are too big or small to be perceived by our five sensory systems." – Howard Gardner's explanation of existential thought.

"The unexamined life is not worth living." –Socrates

"To be a good human being is to have a kind of openness to the world, an ability to trust uncertain things..." – Martha Nussbaum

"We are what we repeatedly do. Excellence, then is not an act, but a habit." – Aristotle

There is no end to education. It is not that you read a book, pass an examination and finish with education. The whole of life, from the moment you are born to the moment you die, is a process of learning. – Jiddu Krishnamurti

"The mind is furnished with ideas by experiences alone." – John Locke

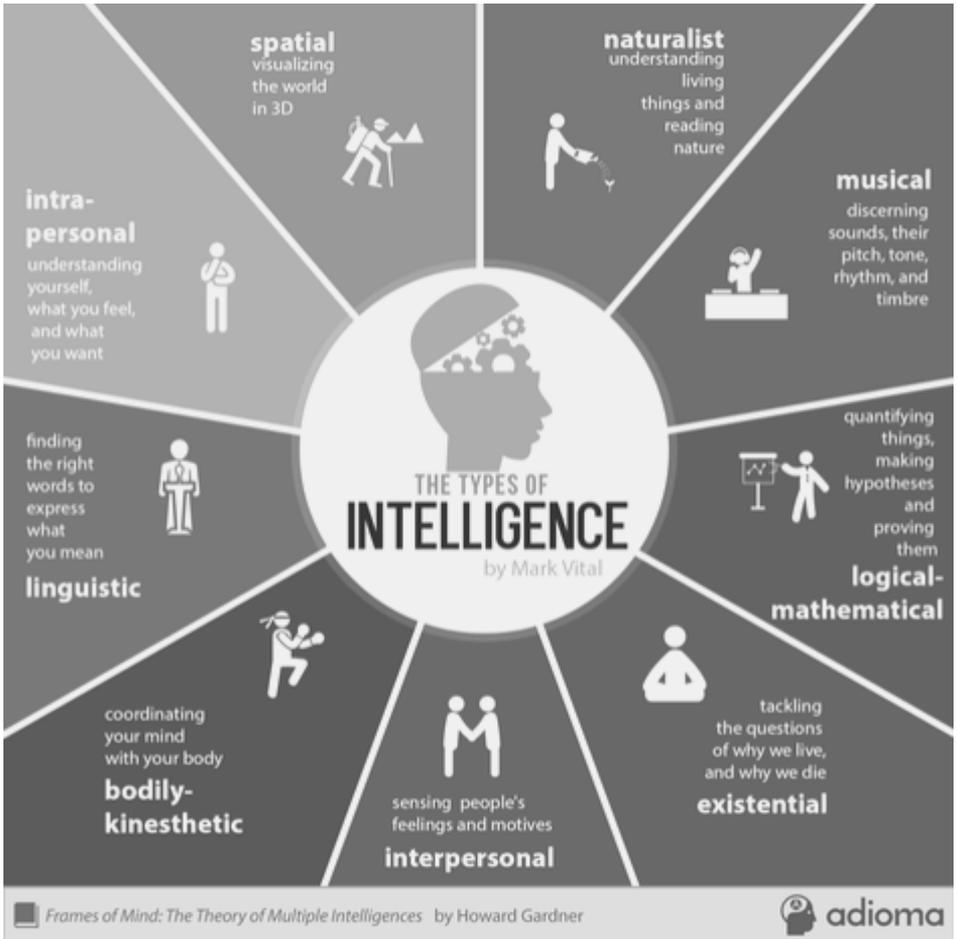
Self-Assessment

CHECK OFF ALL THE STATEMENTS THAT
YOU IDENTIFY WITH:

1. I like to read in my spare time.
2. I think of myself as a musician.
3. I can visualize things in my mind.
4. I draw and doodle a lot.
5. I often reflect on the deeper meaning of things.
6. I love to work with my hands and make things.
7. I enjoy collecting/examining leaves, rocks, or shells.
8. I know when music is off-key or off-beat.
9. I enjoy puzzles.
10. I acknowledge my weaknesses.
11. I am very interested in philosophy
12. I'm great with numbers and dates.
13. I can understand and empathize with people who are unlike me.
14. I am interested by lectures.
15. I'm good at keeping plants alive.
16. I care about fitness and I consider myself to be athletic.
17. I believe that I am responsible for all of my actions.
18. I can sense dishonesty in people.

Which intelligence do you have?

**WHICH ONE DO YOU WANT
TO BUILD?**



If you identify with...

#1 and #14 – Verbal-Linguistic

#2 and #8 – Musical

#3 and #4 – Visual-Spatial

#5 and #11 – Existential

#6 and #16 – Bodily-Kinesthetic

#7 and #15 – Naturalist

#9 and #12 – Logical-Mathematical

#10 and #17 – Intrapersonal

#13 and #18 – Interpersonal

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**IF YOU DON'T WANT
TO KEEP THIS ZINE,
THAT'S OK, BUT
PLEASE RECYCLE IT OR
REUSE IT AGAIN!**

- Use it for kindling
- Rip it up and turn it into papier-mâché
- Wrap a small gift with it
- Fold paper cranes with it and send them to a children's hospital
- Cut it up and make a collage
- Use it as a bookmark



bike maintenance workshops for women+