United States
Olympic
& Paralympic
Museum

# TEACHER'S GUIDE
# GRADES 9-12

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Museum




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# STARTING GATE

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# WELCOME TO THE UNITED STATES OLYMPIC & PARALYMPIC MUSEUM

Every two years the Olympic and Paralympic Games give the world a much-needed reminder of the values and ideals that unite us all. The Games promote peace, harmony and equality and uphold the principles of friendship, fair play, and respect. Teachers, you are about to lead your students through a story of achievement at the highest levels of international competition. You will be inspired by the personal stories of United States Olympians and Paralympians who have harnessed their passion to reach the pinnacle of sport.

Follow their journey to excellence and show your students first-hand what can be accomplished through skill, focus, determination, and tireless effort. The United States Olympic & Paralympic Museum (USOPM) is highly immersive and fully engaging. An experience that blends historic artifacts with state-of-the-art multimedia exhibits will captivate your students from start to finish. From the Opening Ceremonies to the medal podiums, your class will be part of Team USA like never before.

The United States Olympic & Paralympic Hall of Fame, established in 1979, celebrates the achievements of Team USA's premier athletes and teams as well as the impact of legendary coaches and special contributors. Since the first Hall of Fame class was inducted in 1983, nearly 150 individuals and teams have been honored for their contributions to the American Olympic and Paralympic movements. Beginning with a new induction class in 2019, nominations and awards take place every two years. The United States Olympic & Paralympic Hall of Fame, now housed at USOPM, is one of the first major sports hall of fames to incorporate fan voting into its selection process. A field trip to see the Hall of Fame and USOPM provides your students with a vivid look into the rich tradition and excitement of the Olympic and Paralympic Games.

Using the topic of elite sports, along with the interactive experiences at the museum itself, you can connect the educational themes of the exhibition to your national and local STEAM content requirements. This Teacher's Guide features a curriculum designed to offer a memorable learning experience that is interdisciplinary and applicable across several grade levels and areas of study. With Team USA on your side, you are sure to score gold with your students throughout the school year. Now, let's ignite the flame and start the Games!

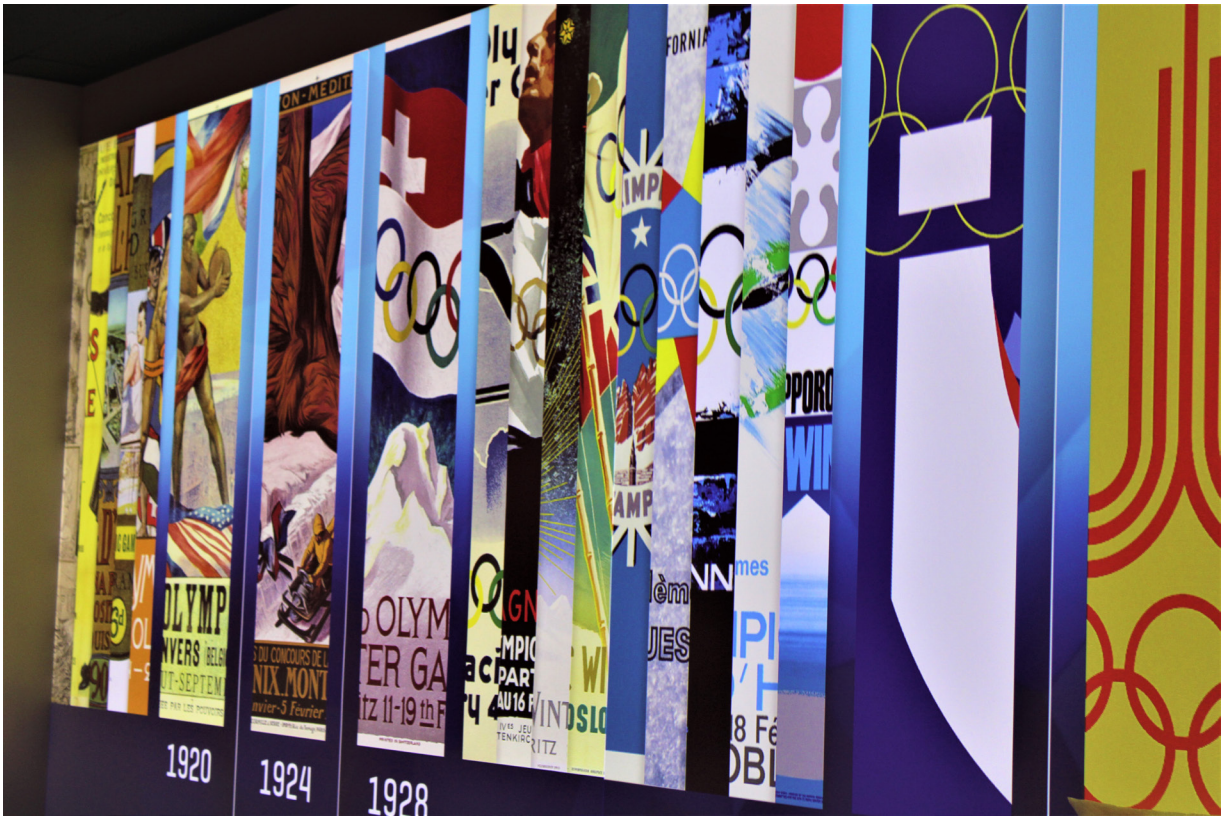
# What to Expect on Your Field Trip

As you enter the United States Olympic & Paralympic Museum (USOPM), you will immediately notice the moving masterpieces painted by LeRoy Neiman. Moving, because they are beautiful to see and they are literally in a bespoke installation film of contemporary athletes. A stunning showcase of the intersection between sports and art, this is the first of many "WOW" moments on your field trip.


On the Lobby level of the museum, you can engage virtually with Olympic and Paralympic Hall of Famers. Students can search inductee profiles by name, year, or sport to view their remarkable highlights and impressive achievements. Even your elevator ride to the upper floors of the museum is memorable! It's an audio exhibit to welcome you as pass by images of athletes and Pike's Peak, America's own Mount Olympus. As you exit, you see and hear the moment the Olympic torch is lit, symbolizing the start of your official journey to celebrate the history, achievements, and future of the Games. Another "WOW!"

To the ancient Greeks, fire symbolized energy, courage, and passion. It's fitting then that a torch and flame became among the most vivid and lasting symbols of the Olympic and Paralympic Games. Torches from the Summer and Winter Games are proudly displayed at USOPM. Your class will explore touchscreens with images and content related to each of the torches. They will discover relay route maps, unique design features, and fun facts about that year's Games.

Everything about the Olympics is big—especially its values and ideals. The Games bring the world together and reflect a vision of peace, equality, excellence, and joy in participation. Students will hear interviews from athletes and coaches about the importance of these values and how they are evident at the Games. Get to know these competitors better (and have some fun!) as you measure your feet against those of some well-known Olympic and Paralympic stars and even learn what athletes in different sports eat daily. Speaking of big, a map of the United




States dominates an interactive wall and allows your students to access details about Team USA athletes including their names, hometowns, birthdays, medal counts, competitions and more. Find out how many gold medal winners share your name or who competed at the first Olympics you remember watching.

In a high energy activity space, your class will be introduced to the training required to achieve the standards of Olympians and Paralympians at six interactive stops. Some activities will even include a performance analysis by a featured athlete dropped into your digital locker. "Speed" includes a running simulator. "Aim" demonstrates a virtual archery bow and target. "Balance" shows a first-person view at the start of the Skeleton track. "Strategy" pauses a Sled Hockey game for you to determine what the player should do next. "Mental Visualization" requires memorizing a sequence of maneuvers to get to the bottom of a ski hill. "Reaction" uses motion tracking to test your reflexes in Goalball, a sport played by visually impaired athletes. Plan to spend some extra time here!

With new insight into the commitment and dedication athletes need at the highest level of competition, you are ready for "The Lab." Your class will discover the impact of innovation and technology on sports equipment, from the bottom of a runner's track shoe and the top of a decathlete's cooling hood to the devices that time their races to one-millionth of a second. Students can also interact with a life-size model of an athlete as they study the scientific, and dangerous, effects of various kinds of doping on the body.

After training your body and your mind, it's time to walk through the tunnel and into the stadium as part of Team USA. Seamlessly moving from this unforgettable Parade of Nations, your group will be completely immersed in footage from the most recent Games along with flashbacks from historic Opening Ceremonies of Games hosted by the United States. "WOW!"

More amazement awaits on the middle level of the museum. Be sure to look up and down and all around at the full range of Olympic and Paralympic sports contested in both the Summer and Winter Games. Interactive walls allow students to select a sport to view medal winners, related photos, and video. Individual stories introduce inspiring athletes on a very personal level. Have you ever wanted to talk directly to an Olympian or Paralympian? What would you want to know? In "Ask the Athlete" you get to have a personalized conversation with cross-country skier Kikkan Randall, a 2018 gold medal champion and Matt Scott, a two-time Paralympic medalist in wheelchair basketball. Truly memorable.

A timeline of every year of the Summer and Winter Olympics and Paralympics presents the chronology of the Games. Students can interact with content ranging from political and social commentary to the distinct cultural background of each host city of the Games. Don't miss the historic artifacts from 1936, 1968, and 1972 on display. Learn more about how the Olympics and Paralympics have become part of popular culture - including fashion, music, headline news, TV shows, and movies. Known as the "Breakfast of Champions," look for a floor-to-ceiling collection of iconic Wheaties® cereal boxes featuring Team USA athletes.

These entertaining moments take a turn as you investigate the terrible events of the 1972 Summer Games in Munich when 11 Israeli team members—five athletes and six coaches—were murdered by Palestinian terrorists. Audio and video archives from the 16-hour television broadcast of this dark day in Olympic history take your class back to the moments this tragedy unfolded in front of the world and led to the death of David Berger, the only Israeli-American victim.

As you return to the Lobby and enter the Medal Experience, you are immediately surrounded by hundreds of digital Olympic and Paralympic medals cascading from the ceiling to the floor, including a montage of iconic podium moments. A final "WOW" moment until you return to USOPM on your next field trip. Every year, nearly half a million athletes compete at the collegiate level in America. Hundreds of thousands more participate in other local and regional competitions. Only a handful are selected to represent America at the Olympic and Paralympic Games. Joining the ranks of these athletes and earning the chance to compete at an international level requires perseverance, dedication and incredible effort. Do you have any future members of Team USA in your class?

# Using This Teacher's Guide

As a companion to your experience at the United States Olympic & Paralympic Museum (USOPM), this comprehensive Teacher's Guide for High School has been created to complement your classroom instruction and makes the most of your school field trip. It contains original, assessable, STEAM-related classroom lesson plans featuring dynamic activities and assignments for students in grades nine through 12. There are also Teacher's Guides for Elementary School and Middle School. Each of these Guides is created to be flexible. Use them to best meet the needs and capabilities of your class. You know your students better than anyone else.

Following this Introduction, you will find **Tour of Champions**, an on-site activity for students to complete during their field trip to USOPM. It will help make the most of their time at the museum, while highlighting some of the relevant content they might not otherwise see or read.

The next section, **Journey to Excellence**, contains four interdisciplinary classroom lesson plans and project-based inquires addressing national and local curriculum standards. The lesson plans begin with background and instruction pages for teachers that include answer keys and a list of content areas addressed by the activities. The plans continue with ready-to-copy Student Activity pages that center on key STEAM topics featured on your tour of USOPM. With a scaffolding approach, multiple parts of each lesson provide a variety of instructional techniques to move your students progressively toward a stronger understanding of the content.

The first lesson plan, **Winning Chemistry**, asks the question - which metal is in that medal? Students will explore the metals featured in the Olympic and Paralympic medals by discovering their unique properties and identifying their places in the periodic table. Next, they will design a medal that represents and celebrates their own community.

In the second lesson plan, **The Summer of 1980**, students will research what was going on in the world during select Olympic years before and during the Cold War and match those years to the events that preceded the 1980 Games. Next, they will practice their document-based question skills for an essay supporting their opinion on whether Team USA should have been part of the United States' response to the Soviet invasion of Afghanistan.



The third lesson, **A Medal with a Side of Fries**, begins with Olympian Adam Nelson's testimony before the United States Congress about his experience with cheating by his competitor at the 2004 Olympics. Then, students will investigate the health risks for five of the most-abused banned substances in sports and share their knowledge of the science behind doping in the form of an infographic.

Your students will begin the fourth lesson plan, **Nothing About Us Without Us**, by comparing and contrasting images of Team USA Olympians and Paralympians to see how clothing and uniforms have evolved in response to changes in technology, styles, safety protocols, and inclusion policies. From there, they will work on a team design challenge centered on fulfilling a need for adaptive apparel in their community.


Under **The Extra Mile**, you will find additional resources for you to use in your classroom as you see fit. Here, a **Timeline of the Modern Olympic and Paralympic Games** can serve as a reference for historical geography, study aids, and writing prompts. Information found in **Team USA Olympic and Paralympic Hall of Fame Inductees** can be used to generate inquiry-based research projects across the curriculum. The next section, **Olympic Games**, contains themed puzzles to assign for extra credit or earmark for your bus ride to and from USOPM. We know how important it is to be able to justify field trips and document how instructional time is spent outside of your classroom. In **Beyond the Medal**, this Teacher's Guide is directly correlated to the Common Core State Standards for Mathematics and English Language Arts along with the Next Generation Science Standards, C3 Framework for Social Studies State Standards, National Health Education Standards, and National Core Arts Standards. You will also find connections to the Colorado Academic Standards. These correlations are organized by content and grade level. You can readily see how they fit into your required curriculum making it easier than ever to connect a field trip to USOPM with your classroom instruction.

All of these education resources can be used before your visit to USOPM to prepare students for the teachable moments found throughout the museum as well as when you return to school to further explore connections between the educational themes of the exhibition and your classroom STEAM instruction. We look forward to inspiring you and your students year after year at USOPM.

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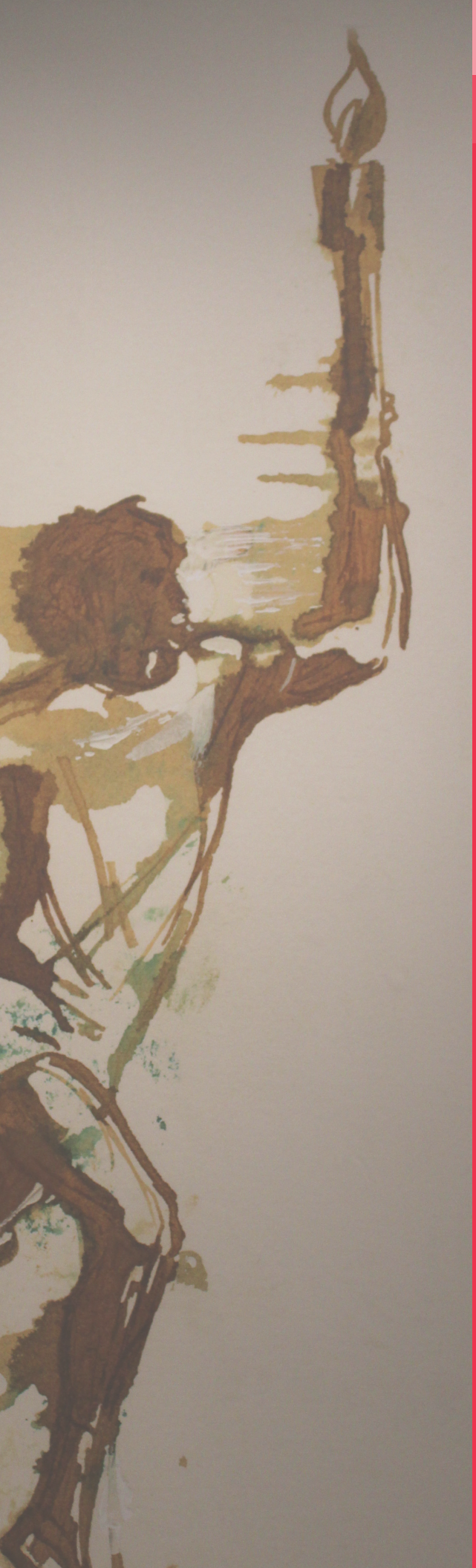

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# TOUR OF CHAMPIONS

A Student Field Trip Activity

# Tour of Champions: A Student Field Trip Activity

## TEACHER INSTRUCTIONS

This activity is for your students to complete during their field trip to the United States Olympic & Paralympic Museum. It will help them make the most of their time by highlighting content they might not otherwise see or read. In each area of the museum, your students direct their own learning by choosing which questions to answer. Each section indicates how many should be answered from that group. You can also assign the number of questions that best fits the skill level and interests of your students.

During your preparations for the field trip, advise your students to read through the questions carefully ahead of time, perhaps on the bus on the way over. This way, they will know what to look for once they are inside the museum. Remind them to look at the text panels, photo captions, and interactive content. Upon returning to school, have students share and compare their answers to the questions they chose. For a true gold medal experience, work in groups or as a whole class to complete all the questions!

## ANSWER KEY

**Hall of Fame**

1. Answers will vary
2. Answers will vary

**Journey to Excellence**

1. The city of Olympia, where the ancient Olympics were held
2. The Heraean Games, named for the Goddess Hera
3. The continents of Africa, Europe, Asia, the Americas, and Oceania
4. Pierre de Coubertin
5. Golf. 1900. Paris.
6. Answers will vary
7. Olympics: excellence, respect, friendship.
8. Paralympics: determination, inspiration, courage, equality
9. 1960
10. The Lakeshore Foundation in Birmingham, Alabama
11. Answers will vary
12. Title IX legislation put women's sports on an equal footing with men's by prohibiting discrimination based on sex in any education program or activity that is federally funded

**Training Stops and The Lab**

1. Choices: Jesse Owens, Carmelia Jeter, Gianfranco Iannotta, Jean Driscoll, David Brown, Marla Runyan, April Holmes, Hunter Woodall
2. Answers will vary
3. Rico Roman
4. Choices: Coach, Sports Sciences, Sports Psychologist, Sports Physiologist, Sports Dietetics, Sports Technology, Sports Medicine, Strength & Conditioning, Coordinator of Athlete Services

5. Choices: Nike Waffle Sole (patterned grips provide greater traction and comfort). Snowboard ('frostbite" edges protrude and provide extra grip on firmer snow and ice. Carbon layer provides more stability and top speeds). Swimming suit (triple-fabric construction enhances compression and flexibility; micro vortices and updated waistband reduce drag). Goal ball (natural and synthetic rubber, knobbed surface for enhanced grip). Clap skate (hinge allows back of boot to flex while skate blade stays on the ice). Smart glasses (world's smallest optical module offers cyclists hi-res display that blends with field of view). Blind cap (small vibrating sensors in the cap alert visually impaired swimmers when it is time to execute flip turn). Cooling hood (inner layers retain cool water, structural frame keeps cold in place and close to face). Skis (Atomic Redster skis with pre-stressed servotec rods and elastomer make them more agile in turns and stable on straightaways, ultra-titanium powered laminate provides edge stability). Omega Quantum Timers (quantum technology provides for accuracy to 1/1000th of a second every 1000 seconds).
6. They play by sound and feel, throwing and blocking a ball with bells inside
7. Choices: Pat Summit, Basketball. James Councilman, Swimming. Herb Brooks, Ice Hockey. Skogen Sprang, Freestyle Skiing. Ed Temple, Track & Field. Teri McKeever, Track & Field. Adam Bleakney, Paralympic Track & Field. James Gumber, Paralympic Rugby. Eileen Carey, Nordic Skiing. Karch Kiraly, Volleyball. Mike Krzyewski, Basketball. Rosalyn Bryant Clark, Paralympic Track
8. Twenty pounds of meat, twenty pounds of bread, three pitchers of wine
9. Answers will vary

**Summer and Winter Games**

1. Michael Phelps
2. Answers will vary
3. Answers will vary
4. Answers will vary
5. Answers will vary
6. Wheelchair Tennis
7. It was completely unexpected. The U.S. team, a bunch of college kids, was beaten by the Soviets, 10-3, just 12 days earlier. In the semifinal, a late goal by team captain Mike Eruzione pushed the U.S. past the four-time defending Olympic champions. Then, two days later the U.S. beat Finland for the gold medal.
8. 8 medals. Apolo Anton Ohno, Short Track Speedskating. Colorado Springs Olympic Training Center.

**The World Watches**

1. Answers will vary
2. Answers will vary
3. Jesse Owens, 1936
4. September 5, 1972
5. Denver, 1976 Summer Games, economic and environmental concerns
6. The Olympic Theme written by John Williams
7. Answers will vary
8. Gabby Douglas

NAME:

CLASS:

DATE:

# Tour of Champions

## STUDENT FIELD TRIP ACTIVITY

Choose the questions you want to answer for each area in the United States Olympic & Paralympic Museum. Look closely at the text panels, photo captions, and interactives. Please do not lean on the glass cases or touchscreens to write. For a true gold medal experience, work in groups or as a whole class to complete all questions!

**Hall of Fame: Choose 1.**

1. Name one Olympian and one Paralympian in the Hall of Fame.

2. Name one man and one woman in the Hall of Fame.

**Journey to Excellence: Choose 8.**

1. What is the name of Colorado Springs' sister city in Greece?

2. What was the name of the all-female athletic competition held in Ancient Greece?

3. What do the colors of the Olympics rings represent?

4. Who is the founder of the modern Olympic games?

5. Margaret Abbott became the first female Olympic champion in which sport? Which year? In which host city?

6. Select an Olympic torch from the touchscreen. Write the year, host city, and one fact about that year's Games.

NAME:

CLASS:

DATE:

7. List the three Olympic core values.

8. List the four Paralympic core values.

9. When did the Paralympic Games officially begin?

10. Where is the training home of USA wheelchair rugby? Name the city and the state.

11. On the interactive map of the United States, find the name an Olympian or Paralympian who shares your birthday.

12. Why is Title IX legislation important?

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**Training Stops and The Lab: Choose 7.**

1. Which athlete did you race against in the running simulator?

2. How many penalties did you get in your skeleton run?

3. Which Paralympian spoke about strategy in their sport?

4. Name three important members of an Olympic/Paralympic training team.

5. Select one of the pieces of sports equipment on display. Explain its innovative technology.

6. How do visually impaired athletes play goalball?

7. Name two Olympic/Paralympic coaches and their sports.

NAME:

CLASS:

DATE:

8. What was the daily diet of Milo of Croton, who won six Olympic wrestling titles in the 6th century B.C.?

9. Name one way doping hurts the body.

---

**Summer and Winter Games: Choose 6.**

1. Who said, "You can't put a limit on anything. The more you dream, the farther you get."

2. Name 3 Summer sports.

3. Name 3 Winter Sports.

4. Choose one Olympic and Paralympic Summer sport and name a Team USA medalist for each one.

5. Choose an Olympic and Paralympic Winter sport and name a Team USA medalist for each one.

6. Which Paralympic summer sport did Brad Parks invent?

7. Why was the U.S. men's ice hockey team's win over the U.S.S.R. at the 1980 Lake Placid Games named the "Miracle on Ice?"

8. Which athlete has more medals than any U.S. Winter Olympian? How many? Which sport? BONUS: Where did he train?

---

**The World Watches: Choose 6.**

1. What question did you ask Kikkan Randall or Matt Scott? What was the answer?

2. Pick a city from the interactive timeline and write one interesting fact about it.

NAME:

CLASS:

DATE:

3. Who said "The road to the Olympics leads to no city, no country. It goes far beyond New York or Moscow, ancient Greece or Nazi Germany…[and] leads—in the end—to the best within us." In what year?

4. What is the date of the Munich Massacre?

5. Which U.S. city is the only one to ever win and then reject an Olympic bid? What year and why?

6. What is the most recognizable music in sports? Who wrote it?

7. Choose a Team USA athlete on a box of Wheaties® cereal. Who is it and what is their sport?

8. Which gold-medal winning gymnast inspired a Barbie doll?

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# JOURNEY TO EXCELLENCE

## STEAM Classroom Activities and Project-Based Inquiries

# Lesson Plan 1
# Winning Chemistry

## TEACHER INSTRUCTIONS & KEY

**Science, Fine Arts**
*Physical Science, Chemistry, Visual Arts*

The vision of first, second, and third place winners on podiums receiving gold, silver, and bronze medals is such a hallmark of the Olympic Games that it is hard to imagine it being any other way. At the first modern Games in 1896, however, first place winners received silver medals and copper or bronze went to second place. That year, James Connolly from the United States leaped into the history books as the first medal recipient of the modern Olympic Games when he won the triple jump (then the "hop, skip, jump"). In 1900, first and second place champions received square-shaped medals with trophies or cups. Gold medals for first place arrived at the 1904 games in St. Louis, MO, and athletes were awarded in the order we are used to today, with silver for second and bronze for third.

There is a saying that not all that glitters is gold. But is it also true that not all that is gold is gold? Olympic gold medals have not been made of solid gold since 1912. Scarcity during the World Wars and the rising price of gold made it impractical to continue that tradition. Gold medals in the modern Olympics are made of silver, plated with gold. Olympic regulations state that gold medals must be at least 92.5% pure silver and plated with at least six grams of 99.9% pure gold. Silver medals are a minimum of 92.5% pure and bronze is a copper alloy (usually with tin or zinc).

Paralympic medals have similar requirements with the exception that, as of 2016, they are not necessarily solid. In addition to braille on the outside, small metal balls were placed inside the medals for Rio de Janeiro. Paralympians can hear each medal because they rattle a different tone based on the number of steel balls inside.

An innovation planned for the medals for the 2020 Summer Games, rescheduled to 2021, was how the precious metals were sourced from 100% recycled materials. The Tokyo Olympic organizing committee collected 78,895 tons of used, small, electronic devices like cellphones, laptops, handheld games, and digital cameras from across Japan for two years. The organizers readily met their goal, which was enough to extract approximately 30 kg of gold, 4,100 kg of silver, and 2,700 kg of bronze.

Your students will see some of the Olympic and Paralympic medals won by Team USA throughout the United States Olympic & Paralympic Museum (USOPM). In the Medal Ceremony Experience, hundreds of Olympic and Paralympic digital medals cascade from the ceiling to the floor and float apart to reveal iconic podium moments. There are currently 52 sets of medals on display. Notice how the medals are similar but unique. For example, medals from Albertville (Winter 1992) are adorned with crystal and those from

Sochi (Winter 2014) incorporate a transparent polycarbonate. Each medal is full of artistry and symbolism specific to their time and place.

In the activities below, your students will explore Olympic and Paralympic medals' metals. They will discover their unique properties and places in the periodic table. In Part 2, students will design a medal that represents and celebrates the uniqueness of their own community.

## ANSWER KEY

**Part 1**

| | Copper | Zinc | Silver | Tin | Gold |
|---|---|---|---|---|---|
| **Symbol** | Cu | Zn | Ag | Sn | Au |
| **Atomic #** | 29 | 30 | 47 | 50 | 79 |
| **Group** | 11 | 12 | 11 | 14 | 11 |
| **Period** | 4 | 4 | 5 | 5 | 6 |
| **Element category** | transition metal | transition/ post-transition metal | transition metal | post-transition metal | transition metal |
| **Block** | d-block | d-block | d-block | p-block | d-block |
| **Atomic weight** | 63.546 | 65.38 | 107.868 | 118.710 | 196.967 |
| **Electron configuration** | $[Ar]3d^{10}\ 4s^{1}$ | $[Ar]3d^{10}\ 4s^{2}$ | $[Kr]4d^{10}\ 5s^{1}$ | $[Kr]\ 4d^{10}\ 5s^{2}\ 5p^{2}$ | $[Xe]4f^{14}\ 5d^{10}\ 6s^{1}$ |
| **Electrons per shell** | 2, 8, 18, 1 | 2, 8, 18, 2 | 2, 8, 18, 18, 1 | 2, 8, 18, 18, 4 | 2, 8, 18, 32, 18, 1 |
| **Oxidation states** | −2, +1, +2, +3, +4 | −2, 0, +1, +2 | −2, −1, +1, +2, +3 | −4, −3, −2, −1, +1, +2, +3, +4 | −3, −2, −1, +1, +2, +3, +5 |

1. Copper, silver and gold are in group 11. Group 11 elements are transition metals that are relatively inert.
2. Copper and zinc are in period 4. Silver and tin are in period 5
3. Copper, zinc, silver, and gold; d-block. D-block elements are transition metals, the d orbital is filled with "n-1," have high melting and boiling points, have high densities, form colored compounds, etc.
4. (a.) Tin has four. (b.) They are transition metals. Gold has one but sometimes three. Copper can have one or two.
5. Zinc, silver, tin, and gold (but a case can be made for copper, which is mildly basic)
6. Brass
7. Answers will vary and might include composition, availability, durability, historic uses

**Part 2**

Assess student work based on how many of the 12 possible points they earned.

NAME:

CLASS:

DATE:

# Winning Chemistry

## STUDENT ACTIVITY

**Terms to Know:**
*alloy, amphoteric oxide, oxidation state, obverse, polycarbonate, Panathenaic, valence*

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NAME:

CLASS:

DATE:

In the activities below, you will explore Olympic and Paralympic medals' metals. You will discover their unique properties and places in the periodic table. In Part 2, you will design a medal that represents and celebrates the uniqueness of your own community.

## Part 1

Which metal is in that medal? In Olympic and Paralympic medals, you can find gold, silver, copper, zinc, and tin. Because the gold medals are silver plated with gold, their gold content is just over 1%. The silver medals are usually pure silver but at the London 2012 Games they contained 7% copper. The formula for bronze varies. The bronze medal from 2012 is 97% copper, 2.5% zinc, and 0.5% tin. For the 2018 PyeongChang Winter Olympics, the bronze is an alloy of 90% copper and 10% zinc.

Use the periodic table to investigate the relative properties of these elements. If you do not have a periodic table in your science resources, find one at www.rsc.org/periodic-table or www.ptable.com/. Complete the chart below and answer the questions that follow. Parts of the chart have been filled in to get you started.

| | Copper | Zinc | Silver | Tin | Gold |
|---|---|---|---|---|---|
| **Symbol** | Cu | | | | |
| **Atomic #** | | 30 | | | |
| **Group** | | | 11 | | |
| **Period** | | | | 5 | |
| **Element category** | | | | | transition metal |
| **Block** | d-block | | | | |
| **Atomic weight** | | 65.38 | | | |
| **Electron configuration** | | | $[Kr]4d^{10}\ 5s^{1}$ | | |
| **Electrons per shell** | | | | 2, 8, 18, 18, 4 | |
| **Oxidation states** | | | | | −3, −2, −1, +1, +2, +3, +5 |

NAME:

CLASS:

DATE:

1. Which elements are in the same group? Which group? Describe some of the group's properties.

2. Which elements are in the same periods? Which periods?

3. Which elements are in the same block? Which block? Describe some of this block's properties.

4. (a.) How many valence electrons does tin have? (b.) Why do the other elements have variable valencies? Give an example.

5. Which elements in the chart form amphoteric oxides?

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6. What other name is commonly used for the alloys used in bronze medals?

7. Why do you think these elements are used to make Olympic and Paralympic medals?

**Part 2**

The Summer and Winter Olympic and Paralympic medals must include certain elements required by the official international committee. Once those standards are meet, host cities are free to create something that represents their area, the people who live there, and the spirit of the athletes. For example, diagonal lines on medals from the 2018 Winter Games in PyeongChang resemble the texture of trees. The designer said they symbolize "the work that has gone into developing Korean culture and the games themselves." In 2006, the medals won in Torino were ring-shaped with a hole in the middle to be like the Olympic rings. With an open space at its center, the medal reveals the place where the heart beats when worn, the symbol of life itself.

Local traditions and geography also appear in designs. The 1908 medals in London show the patron saint of England, St. George, who slew a dragon according to legend. The Winter Olympics were held in Lake Placid, New York, in 1932. The

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medal for those Games showed the Adirondack mountains, a winter sports stadium, and a ski jump. When Lillehammer hosted the Winter Games in 1994, they included a mineral—sparagmite—specific to Norway. The medals for the 2002 Summer Games in Beijing featured jade because it is culturally significant in China.

If your hometown hosted the next Olympics and Paralympics, would it be for Summer or Winter? What geography from your area should be featured? How would you incorporate local culture and traditions? How can you depict the Olympic and Paralympic core values of excellence, friendship, respect, determination, courage, equality, and inspiration? Use the lists below to design a medal for your community. Draw your medals on separate paper, including images for the obverse and reverse.

Your medal must be a minimum of 60 mm in diameter (1 pt.). While the obverse has specific requirements, listed below, your plan for the reverse is customizable for your hometown and it needs at least three features specific to where you live (3 pts). You may want to delve into the periodic table to find elements with local connections. Attach a paragraph that explains the meanings in your design for the reverse (4 pts).

**Winter Obverse (4 pts):**

- Olympic/Paralympic emblem
- Name of the games
- Name of the sport or event
- Goddess Nike must not appear on the obverse

**Summer Obverse (4 pts):**

- Nike, the Greek goddess of victory and the Panathinaikos Stadium in Athens, Greece
- The name of the Games
- The Olympic or Paralympic symbol
- Name of the sport or event

# Lesson Plan 2
# The Summer of 1980

## TEACHER INSTRUCTIONS & KEY

**Social Studies; Reading, Writing, & Communicating**
*History, Writing & Composition,*
*Reading for All Purposes*

The Olympic and Paralympic Games are meant to be immune from politics, but that is often not the case. The Games were ensnarled by the Cold War during the twentieth century and became a way for countries to demonstrate their leaders' opinions of current events. The 1980 Summer Games in Moscow took center stage in the conflict between the Soviet Union and its allies versus the United States and its allies in an epic Cold War showdown.

On Christmas Day in 1979, the Soviet military invaded Afghanistan to prop up a floundering communist regime. The United States and its allies decried the move as aggressive and illegal. President Jimmy Carter tried to force the Soviet Union to leave Afghanistan or at least to prove how unacceptable the invasion was to the rest of the world. He began with grain embargoes and restrictions on technology exports. In January 1980, Carter announced that unless the Soviets left Afghanistan, or the Games were moved to a different country, or they were postponed to a later date, the U.S. Olympic team would boycott the Games in Moscow.

The National Olympic Committee (NOC) in each country decides whether to participate, but they usually align with their government. President Carter could not forbid American athletes from attending the Games in Moscow nor could he order the United States Olympic Committee (USOC) to boycott the Games. That decision had to come from the USOC based on a vote by the athletes. The Carter administration did as much as it could to convince the athletes and the USOC to support the boycott. They made their case in multiple meetings, memos, phone calls, and speeches to audiences in America and abroad. They hoped other countries would join the boycott, too. Ultimately, the USOC felt they had little choice.

Other nations followed their lead. In all, 65 countries declined to participate, although not all reasons involved Afghanistan. In some countries, like Great Britain, the government supported a boycott but the national Olympic committee did not. British athletes went to Moscow, but not as representatives of Britain. They used the Olympic flag and anthem instead. Four years later, the Soviet Union and 13 of its allies boycotted the Summer Olympic Games in Los Angeles, California.

Boycotts were not new to the Olympics in 1980. In Part 1 below, your students will review other years when current events affected the number of participants at the Games. On your field trip to the United States Olympic & Paralympic Museum (USOPM), your students can take a journey through the chronology of the Games on an interactive timeline wall. They will be able to scroll through every Summer and Winter Olympic and Paralympic Games and see details of the political and cultural events affecting the spirit of the Games during that year.

Boycotts don't guarantee long-term effects, but they highlight the controversial issues of the time. During the summer of 1980, both Americans and Soviets felt that holding the Games in the capital city of a Communist country validated the U.S.S.R.'s policies. The success of the 1980 Boycott is still debated decades later. In Part 2, your students will practice their document-based question skills in an essay supporting their opinion on whether the athletes should have been part of the United States' response to the Soviet invasion of Afghanistan.

## ANSWER KEY

**Part 1**

1. e
2. a
3. g
4. b
5. c
6. h
7. d
8. f

**Part 2**

Assess students' essays based on the document-based question (DBQ) rubric you use for AP History test prep with your class. Alternatively, evaluate it as an informative or persuasive essay for English Language Arts. Let your students know whether you are using the essay as an exercise for an AP DBQ or literacy in history/social studies.

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# THE SUMMER OF 1980

## STUDENT ACTIVITY

**Terms to Know:**
*apartheid, boycott, Axis Powers, Central Powers, subjugate, Cold War, Communist*

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Boycotts don't guarantee long-term effects, but they highlight the controversial issues of the time. During the summer of 1980, both Americans and Soviets felt that holding the Games in the capital city of a Communist country validated the U.S.S.R.'s policies. The success of the 1980 Boycott is still debated decades later. In Part 2, you will practice your document-based question skills in an essay supporting your opinion on whether the athletes should have been part of the United States' response to the Soviet invasion of Afghanistan

**Part 1**

International politics affected the Olympics many times before the summer of 1980. Research what was going on in the world in the years below and match the years to the events that affected which nations participated in the Games.

**a. 1916**
**b. 1920**
**c. 1940**
**d. 1944**
**e. 1948**
**f. 1956**
**g. 1964**
**h. 1976**

1. _____ Germany, Romania, and Japan were suspended because they had been major Axis Powers.
2. _____ Olympic Games were cancelled due to World War I.
3. _____ South Africa was banned from this and all Olympics Games until 1992 because of their apartheid policies and racial injustices.
4. _____ Former Central Powers Austria, Bulgaria, Germany, Hungary, and Turkey were not allowed to participate.
5. _____ The first time the Games were cancelled due to World War II.
6. _____ Many African nations boycotted to protest New Zealand's inclusion in the Games after the New Zealand rugby team played in South Africa despite a ban on international sporting events with South Africa because of apartheid.
7. _____ The second time the Games were cancelled due to World War II.
8. _____ Switzerland, Spain and the Netherlands boycotted to protest the Soviet invasion of Hungary. Egypt, Lebanon, and Iraq boycotted because of British involvement in the Suez Crisis. China boycotted to protest the inclusion of Taiwan in the Games.

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**Part 2**

Answer the question below in an essay based on the accompanying excerpts. The texts have been edited for the purpose of this exercise. Modeled after the document-based question in the AP History exam, your written response should include each of the following elements:

- thesis
- argument development
- use of the documents
- sourcing the documents
- contextualization
- outside evidence
- synthesis

*Essay Question: Should the U.S. Olympic athletes have become part of the United States' response to the 1979 Soviet invasion of Afghanistan? Why or why not?*

## DOCUMENT 1

**Fundamental Principle #1, Olympic Charter**

The aims of the Olympic movement are: to promote the development of those physical and moral qualities which are the basis of sport, to educate young people through sport in a spirit of better understanding between each other and of friendship, thereby helping to build a better and more peaceful world, to spread the Olympic principles throughout the world, thereby creating international goodwill.

*From: 1980 Olympic Charter, www.olympic.org/olympic-studies-centre/collections/official-publications/olympic-charters*

## DOCUMENT 2

**Handbook for Party Militants in the Communist Party, Moscow, 1980**

The ideological struggle between East and West is directly involved in the selection of the cities where the Olympic Games take place. The decision to award the Olympic Games to the capital of the world's first socialist state is convincing testimony of the general recognition of the historic importance and correctness of the foreign policy course of our country, and of the enormous service of the Soviet Union in the struggle for peace.

*From: Weekly Compilation of Presidential Documents, January 7, 1980, Vol. 16, No. 1*

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## DOCUMENT 3

**Speech by President Jimmy Carter to members of Team USA, March 21, 1980**

You occupy a special place in American life, not because of your talent or your dedication or your training or your commitment or your ability as an athlete, but because for American people, Olympic athletes represent something else. You represent the personification of the highest ideals of our country. You represent a special commitment to the value of a human life, and to the achievement of excellence within an environment of freedom, and a belief in truth and friendship and respect for others, and the elimination of discrimination, and the honoring of human rights, and peace.

Even though many of you may not warrant or deserve that kind of esteem, because you haven't thought so deeply about these subjects, perhaps, the American people think you do, because you are characterized accurately as clean and decent and honest and dedicated.

*From Public Papers of the Presidents of the United States: Jimmy Carter, 1980-81. Washington, D.C.: Government Printing Office*

## DOCUMENT 4

**Speech by Vice President Walter Mondale to the USOC before the USOC boycott vote, April 12, 1980**

As we meet today, the lesson of the Soviet invasion of Afghanistan still waits to be drawn. History holds its breath; for what is at stake is no less than the future security of the civilized world. If one nation can be subjugated by Soviet aggression, is any sovereign nation truly safe from that fate? If 100,000 Russian troops, and the barbaric use of lethal gas, and the specter of nightly assassinations—if these fail to alarm us, what will? If the Soviet lunge toward the most strategic oil-rich spot on Earth fails to unite us, what will? And if we and our allies and friends fail to use every single peaceful means available to preserve the peace, what hope is there that peace will long be preserved?

*From: History and Public Policy Program Digital Archive, FRUS 1977-1980, Vol. 1, Document 143.* https://digitalarchive.wilsoncenter.org/document/123796

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## DOCUMENT 5

**Garry Bjorklund, 1976 Olympian in the 10,000 meters, reaction to the USOC boycott decision**

I don't like having my livelihood wasted. And that's what I feel they're doing. I've run 17,000 miles since the '76 Games in preparation for 1980, and now. . .

*From: "Reaction to the 1980 Olympic Boycott Decision." Runner's World. April 1, 1980. www.runnersworld.com/advanced/a20826758/reaction-to-the-1980-olympic-boycott-decision/*

## DOCUMENT 6

**Chuck Smead, American long-distance record holder for 50 km, reaction to the USOC boycott decision**

Look at all the people who are getting killed in Afghanistan! What's more important? Getting killed or going to the Olympics? I kinda feel the U.S. has got to do something.

*From: "Reaction to the 1980 Olympic Boycott Decision." Runner's World. April 1, 1980. www.runnersworld.com/advanced/a20826758/reaction-to-the-1980-olympic-boycott-decision/*

## DOCUMENT 7

**Statement from White House Press Secretary, April 12, 1980, after the USOC vote to boycott**

Now that the USOC has made clear that it will not take part in the Moscow games, we are confident that other leading nations of the free world will join in this demonstration that no nation is entitled to serve as host for an Olympic festival of peace while it persists in invading and subjugating another nation.

*From: Gerhard Peters and John T. Woolley, The American Presidency Project, www.presidency.ucsb.edu/node/250690*

## DOCUMENT 8

**Bill Rodgers, favorite for the gold medal in the marathon and ranked #1 in the world in the marathon by *Track & Field News* in 1979**

We should force the USOC [members] to quit because they voted this. I think they should all lose their jobs. They've given up what their jobs stood for, which was not to allow any racial, religious or political pressures to affect them... I don't know of a lower level that American sport has sunk to.

*From: "Boycott Vote Gets A Mixed Reaction," Washington Post, April 13, 1980.*

# Lesson Plan 3
# A Medal with a Side of Fries

## TEACHER INSTRUCTIONS & KEY

**Science; Reading, Writing, & Communicating; Health**
*Anatomy, Life Science, Reading for All Purposes, Prevention & Risk Management*

In 2004, Adam Nelson was a shot putter for Team USA and on his way to win an Olympic gold medal. In the final competition, his best throw tied that of his rival from Ukraine. Based on tie-breaking second shots, the gold medal went to the athlete from Ukraine while Nelson received the silver. As a result of improved knowledge and retesting, laboratory results eight years later showed that the gold medalist had used a banned steroid. Scientists knew how quickly technology progresses and it became standard procedure for testing samples to be saved from each Olympic Games, with the expectation that more precise ways to analyze them would soon be available. These advances in biochemistry proved that Nelson should have won the gold medal.

Nelson eventually received the gold medal he earned, but his experience shows how performing-enhancing drugs (PED) hurt more than just the athletes who use them. Olympic track and field athlete Kara Winger explains, "anti-doping rules are important to sport because we all want to have a chance at greatness. You don't become an Olympic athlete and just want to be okay, or in the middle, or see people who have cheated get the glory that you worked so hard for."

Olympians, Paralympians, and many other athletes follow rules established by the World Anti-Doping Agency, or WADA. The WADA maintains a "Prohibited List" of substances and methods that are considered "doping" in sports. The list is used by the International Olympic Committee (IOC), International Paralympic Committee (IPC), United States Ant-Doping Agency (USADA), and the United States Olympic and Paralympic Committee (Team USA).

The temptation to cheat is not limited to elite athletes. Doping is reported in high school sports, too. The dangers of PEDs are the same regardless of who uses them. Some of the drugs are so new that very is little known about their long-term effects. Others are proven to be ineffective, and yet are still used. The risks involve every system of your body and, for some of the most-used PEDS, include sudden death at any age. Initially intended for legitimate medical purposes, PEDs are dangerous and illegal when used improperly. The WADA doping list is divided into three sections based on when the PDA might be used: during competition only, in and out of competition, or only for specific sports. It is further categorized into three banned methods, such as blood transfusions, and ten banned substances that athletes might use to boost their performance.

At the United States Olympic and Paralympic Museum (USOPM) your students will encounter a life-sized athlete displayed on an interactive touchscreen. They will be introduced to the effects of various types of doping and measures of detection. They will also learn about the ongoing commitment of the USOPC to every athlete's fundamental right to compete in clean sport. In this lesson plan, your students will begin by reading more about Adam Nelson's experience with cheating by his competitor at the Olympics. The complete text of his statement from a 2017 Congressional hearing entitled "Ways to Improve and Strengthen the International Anti-Doping System" is available here: Adam Nelson Testimony.

Next your class will investigate the health risks for five of the most-abused substances: stimulants, erythropoietin (EPO), human growth hormone (HGH), diuretics, and anabolic-androgenic steroids (AAS). Students will then work in groups to share their knowledge of the science behind doping in the form of an infographic.

## ANSWER KEY

**Part 1**

1. 1996
2. He planned his adult life around trying to get to the Olympics, which are held every four years.
3. It was in the Olympic Stadium in Greece, where the original Olympics were held thousands of years earlier.
4. "the faces in the crowd, the heat, the dust, the sun baking my skin, the mixture of cheers and boos..."
5. Answers will vary.
6. 2012/8 years later when a reporter called him.
7. It is committing to a process of self-improvement and living life to the fullest regardless of the outcomes as there are no guarantees.
8. Answers will vary.

**Part 2**

1. f
2. m
3. j
4. a
5. o
6. g
7. k
8. d
9. n
10. b
11. h
12. e
13. l
14. c
15. 1
16. a. heart, b. high, c low, d. rapid
17. The blood clot forms in the circulatory system but it ends up in lungs (respiratory system).
18. Stimulants and AAS
19. Stimulants, HGH, or AAS
20. All of them

**Part 3**

Assessment for health risks infographic, out of 40 possible points

- Substance name (1 point)
- Description (1 point)
- Medical uses (1 point)
- Molecule or compound structure (image or description) (3 points)
- Role or significance of the four key terms (8 points)
- Human body diagram (4 points)
- A minimum of three anatomical systems (6 points)
- A minimum of eight health risks (16 points)

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# A Medal with a Side of Fries

## STUDENT ACTIVITY

**Terms to Know:**
*autoimmune, detrimental, mantra, metabolic, retroactive, synthetic*

In 2004, Adam Nelson was a shot putter for Team USA and on his way to win an Olympic gold medal. In the final competition, his best throw tied that of his rival from Ukraine. Based on tie-breaking second shots, the gold medal went to the athlete from Ukraine while Nelson received the silver. As a result of improved knowledge and retesting, laboratory results eight years later showed that the gold medalist had used a banned steroid. Scientists knew how quickly technology progresses and it became standard procedure for testing samples to be saved from each Olympic Games, with the expectation that more precise ways to analyze them would soon be available. These advances in biochemistry proved that Nelson should have won the gold medal.

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The temptation to cheat is not limited to elite athletes. Doping is reported in high school sports, too. The dangers of PEDs are the same regardless of who uses them. Some of the drugs are so new that very is little known about their long-term effects. Others are proven to be ineffective, and yet are still used. The risks involve every system of your body and, for some of the most-used PEDS, include sudden death at any age. Initially intended for legitimate medical purposes, PEDs are dangerous and illegal when used improperly. The WADA doping list is divided into three sections based on when the PDA might be used: during competition only, in and out of competition, or only for specific sports. It is further categorized into three banned methods, such as blood transfusions, and ten banned substances that athletes might use to boost their performance.

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At the United States Olympic and Paralympic Museum (USOPM) you will encounter a life-sized athlete displayed on an interactive touchscreen. They will be introduced to the effects of various types of doping and measures of detection. They will also learn about the ongoing commitment of the USOPC to every athlete's fundamental right to compete in clean sport. In this activity, you will begin by reading more about Adam Nelson's experience with cheating by his competitor at the Olympics. Next you will investigate the health risks for five of the most-abused substances: stimulants, erythropoietin (EPO), human growth hormone (HGH), diuretics, and anabolic-androgenic steroids (AAS). You will then work in groups to share your knowledge of the science behind doping in the form of an infographic.

**Part 1**

*Adam Nelson and fellow Olympian Michael Phelps appeared before the U.S. Congress on February 28, 2017, in a hearing entitled "Ways to Improve and Strengthen the International Anti-Doping System." Nelson testified how doping robbed him of his Olympic dream. Read this excerpt and answer the questions that follow.*

## MY OLYMPIC MOMENT

As a 9-year-old I remember watching athletes like Mary Lou Retton and Edwin Moses represent the United States of America in the 1984 Olympic Games. Their performances inspired a generation of childhood dreamers like me – at least for a moment – to imagine what it would feel like to compete for your country at the largest sporting event in the world, culminating in an unforgettable medal ceremony accompanied by my flag and my national anthem. Twelve years later, I competed at my first Olympic Trials as a shot putter finishing last in an effort that fueled the dream for four more years. Four more years has been my mantra for my adult life.

The 2004 Olympic Shot Put competition was contested in the ancient Olympic Stadium in Olympia, Greece. More than 20,000 fans traveled to see the first competition in this venue in nearly 3,000 years. For 58 of 60 throws in the competition I was leading. On the 59th throw the athlete from the Ukraine tied my best mark. As the leader going into the final rounds, I had the privilege to take the final throw – the 60th throw of the competition. As a child my imagination could have never dreamed of a moment like this one. These are the moments that make the Olympics great.

I can remember everything about that moment: the faces in the crowd, the heat, the dust, the sun baking my skin, the mixture of cheers and boos for an American athlete. These are the moments that change the trajectory of your life. This was my moment that I'd earned through engaging in this life that Olympic athletes know as "the struggle." This was my moment that I'd prepared for every day for the past seven years. As the shot put touched my neck, the world went quiet until it exploded

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back to life as the shot put left my hand sailing farther than any other throw of the day. I raised my hands in victory, only to see the red flag raised indicating that I'd fouled. Then, I watched another athlete take his victory lap, listened as they played another national anthem and raised another flag in his honor. For eight years I lived with that result.

Shortly before the 2012 Olympic Games I received a phone call from a reporter. She told me that the athlete that had been awarded the gold in 2004 had tested positive in a retroactive drug testing of samples from the 2004 Athens Olympic Games. A month later she called to inform me that the IOC was meeting to discuss whether or not to vacate his position or reallocate the medals. During that call, the news hit the wire. She told me I was the Olympic Gold Medalist.

Pierre de Coubertin [founder of the modern Olympics] stressed the importance of the journey over the outcome, because he knew that in any competition there would only be one winner - but every athlete would experience personal victories along the way. The spirit of Olympism is about committing to a process of self-improvement and living life to the fullest regardless of the outcomes as there are no guarantees. But I earned a medal in a competition that continued long after my last throw. I did not learn of the true outcome until a reporter informed me of it and, a year later, I picked up my medal at the food court in the Atlanta Airport. I can joke about it now. But the childhood dreams of a 9-year old winning an Olympic Gold on behalf of his country never included a side of fries and a free toy. Though maybe the 9-year old would have appreciated those, too.

”

1. For which year's Games did Nelson fail to qualify during his first Olympic Trials?

_____

2. When Nelson said, "Four more years has been my mantra," what do you think he meant?

_____

_____

3. Why was the location of the 2004 shot put event significant?

_____

_____

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4. How does Nelson describe the sights, sounds, and feelings of his final throw in the 2004 Games?

5. How do you think Nelson felt as he received the silver medal while he "watched another athlete take his victory lap, listened as they played another national anthem and raised another flag in his honor?"

6. When and how did Nelson discover that the athlete who won the gold medal failed the retroactive drug test?

7. How does Nelson describe the spirit of Olympism?

8. Based on his experience, why do you think Nelson participates in efforts to improve international anti-doping measures?

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**Part 2**

The chart at the end of part 2 reveals the health risks of using five banned PEDs: stimulants, EPO, HGH, diuretics, and AAS. Familiarize yourself with the following medical terms and answer the questions below.

| | | |
|---|---|---|
| **a. Acromegaly** | **f. Edema** | **k. Hypovolemia** |
| **b. Anemia** | **g. Hyperglycemia** | **l. Pulmonary embolism** |
| **c. Arrythmia** | **h. Hypertension** | **m. Tachycardia** |
| **d. Cardiomegaly** | **i. Hypotension** | **n. Tachypnea** |
| **e. Cardiomyopathy** | **j. Hypoglycemia** | **o. Thrombosis** |

1. _____ swelling from fluid retention
2. _____ rapid heart rate
3. _____ low blood sugar
4. _____ excessive bone growth especially of the hands, feet, and face
5. _____ blood clot
6. _____ high blood sugar
7. _____ decreased volume of blood
8. _____ enlarged heart
9. _____ rapid breathing rate
10. _____ not enough red blood cells
11. _____ high blood pressure
12. _____ diseased heart muscle
13. _____ blood clot in artery in the lungs
14. _____ irregular heartbeat
15. _____ low blood pressure

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16. Based on the terms defined above, what are the meanings of these prefixes?

a. cardio: _____

b. hyper: _____

c. hypo: _____

d. tachy: _____

17. How does a pulmonary embolism involve both the circulatory and respiratory systems?

_____

18. Which substances have risks of psychiatric disorders?

_____

19. Although athletes may believe performing enhancing drugs improve their strength and size, they can ultimately have the opposite effect. Identify at least one substance that damages muscles and growth.

_____

20. Which substances can cause sudden death?

_____

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| | Stimulant | EPO | HGH | Diuretics | AAS |
|---|---|---|---|---|---|
| **Nervous** | · Aggression and anger<br>· Anxiety and nervousness<br>· Coordination/balance problems<br>· Delusions<br>· Depression<br>· Insomnia<br>· Seizures | | · Loss of vision<br>· Severe headaches | · Confusion<br>· Coordination/balance problems<br>· Dizziness, fainting | · Aggression and anger<br>· Delusions<br>· Depression, suicide<br>· Paranoia |
| **Circulatory** | · Arrhythmia<br>· Decreased blood flow<br>· Heart attack or stroke/ sudden death<br>· Hypertension<br>· Tachycardia | · Anemia<br>· Blood cancers/ leukemia<br>· Heart attack or stroke/ sudden death<br>· Hypertension<br>· Pulmonary embolism<br>· Thrombosis | · Blood cancers/ leukemia<br>· Cardiomegaly<br>· Cardiomyopathy Hypertension<br>· Heart attack or stroke/ sudden death<br>· Heart muscle degeneration<br>· Pulmonary embolisms | · Arrythmia<br>· Heart attack or stroke/ sudden death<br>· High cholesterol<br>· Hypotension<br>· Hypovolemia<br>· Pulmonary embolisms<br>· Thrombosis | · Arrythmia<br>· Cardiomyopathy<br>· Heart attack or stroke/ sudden death<br>· Heart muscle degeneration<br>· High cholesterol<br>· Hypertension |
| **Musculo-skeletal** | · Involuntary shaking/ trembling<br>· Loss of muscle mass<br>· Weight loss | · Joint and muscle pain | · Acromegaly<br>· Arthritis<br>· Carpal tunnel syndrome<br>· Joint pain<br>· Muscle weakness | · Muscle cramps | · Stunted height<br>· Tendinitis, ruptured tendons |
| **Endocrine** | · High body tempera-ture/ heat stroke<br>· Hyperglycemia | | · Diabetes<br>· Hypoglycemia<br>· Thyroid problems | | · Men: baldness, breast growth<br>· Women: facial and body hair |
| **Other** | · Tachypnea | · Autoimmune diseases<br>· Nausea, vomiting<br>· Skin rash | · Edema<br>· Enlarged liver, kidneys, tongue | | · Severe acne<br>· Infertility<br>· Liver damage |

NAME:

CLASS:

DATE:

**Part 3**

Now that you know how dangerous PEDs are, share your knowledge of the science behind doping. Select one of the five categories of banned substances from the chart on the previous page: stimulants, EPO, HGH, diuretics, or AAS. Research and design an infographic to explain why these medications are hazardous when misused. Think of it as an advertisement that needs to catch people's attention and inform them at the same time.

Your infographic must contain the following components in a combination of text and images, and will be assessed as follows:

- Substance name (1 point)
- Description (1 point)
- Medical uses (1 point)
- Molecule or compound structure (image or description) (3 points)
- Role or significance of the four key terms, provided below (8 points)
- Human body diagram (4 points)
- Effects on at least three anatomical systems (6 points)
- List a minimum of eight health risks (16 points)

*Begin your research with the additional background information provided below and the health risks you read about in Part 2. Continue your investigation online and with resources from your science or health class. Share your infographic with your class.*

**Stimulants**

| | |
|---|---|
| **Description** | synthetic compounds that affect the central nervous system or metabolic activity in order to increase alertness and attention |
| **Medical use** | treat attention-deficit hyperactivity disorder, narcolepsy, and asthma |
| **Key terms** | catecholamines, sympathetic nervous system, neurotransmitters, glycogen |

**EPO (erythropoietin)**

| | |
|---|---|
| **Description** | hormone produced naturally by the human body, now made synthetically, that stimulates red blood cell production |
| **Medical use** | treat severe anemia due to kidney disease, chemotherapy, cancer, bone marrow conditions, and premature birth |
| **Key terms** | glycoprotein, hemoglobin, marrow, blood viscosity |

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## HGH (human growth hormone)

| | |
|---|---|
| **Description** | hormone that is naturally produced by the body, now made synthetically, to stimulate bone growth and muscle mass |
| **Medical use** | treat cancer, aid those born prematurely, natural growth hormone deficiencies |
| **Key terms** | pituitary gland, peptide, somatotropin, insulin-like growth factor-I (IGF-I) |

## Diuretics

| | |
|---|---|
| **Description** | synthetic compounds that stimulate or inhibit natural hormones to increase urine production and remove excess fluids from the body |
| **Medical use** | control high blood pressure, treat congestive heart failure, kidney failure, and lung diseases |
| **Key terms** | electrolytes, masking effect, nephron, dehydration |

## Steroids

| | |
|---|---|
| **Description** | synthetic compounds that mimic a natural hormone in order to Increase muscle mass |
| **Medical use** | treat delayed puberty, body-wasting conditions like HIV/AIDS and cancer |
| **Key terms** | anabolic, androgenic, testosterone, lipid-soluble |

# Lesson Plan 4
# Nothing About Us Without Us

## TEACHER INSTRUCTIONS & KEY

**Social Studies; Career & Technical Education, Computer Science**
*History, Health Science, Family & Consumer Science, Technical Sciences, Computational Thinking*

The Olympics and Paralympics are a global stage where cutting edge technologies often debut before they become part of our daily lives. Some are so common that is hard to imagine life without them, like televised sporting events—they began with the 1936 and 1948 Summer Games. Tank tops and baggy shorts were once standard for runners while skiers raced downhill in layers of wool. These days, we are all familiar with the stream-lined, form-fitting speed suits worn in many sports. At the United States Olympic and Paralympic Museum (USOPM), you will learn about the first Nike® "waffle" sole whose modern counterpart might be on your feet right now!

In the early years of the Winter Olympics, bobsledders' helmets were basically leather caps. Soon, if you can imagine, Paralympians might be able to control bobsleds with a helmet interpreting their thoughts! The evolution of technology changes the clothing and equipment athletes use. These developments have profound impact outside of the Games as well. In the 1960s, wheelchairs were made of steel and weighed about 50 pounds. As competition chairs progressed in their design, weight, maneuverability, efficiency, and adaptability improved for everyone. Paralympic wheelchairs can now weigh less than 15 pounds and carbon fiber and 3-D printing are used to custom-build chairs for elite athletes. At USOPM, your class will see this evolution from hospital chairs to the Eliminator NRG racing chair Paralympian Amanda McGrory used to win gold at the 2008 Summer Games in Beijing.

Mike Schultz, a member of the U.S. Paralympic snowboarding team, developed the prosthetic leg that he used to win gold and silver medals in 2018. Many of his teammates, his competitors, and athletes in other sports use his invention as well. Arielle Rausin is a Paralympic wheelchair racer who created a 3-D printed racing glove in college. She now has a company that makes them for other wheelchair athletes, including high school students. You can see a pair of her gloves at USOPM. Paralympians and adaptive athletes at any level are often at the forefront of designing the apparel and gear that they need. Although this makes sense because they are the ones who use it, their voices were not always heard.

The phrase "Nothing about us without us" gained popularity during the disability rights movement to protest when decisions were made about people with disabilities without consulting them. The same is also true for adaptive apparel. Who knows better which jeans are easiest to put on from a wheelchair or how to put a bathing suit on with one arm? Online shopping has made it easier

to find adaptive clothing but there is still a long way to go to improve access, styles, and prices.

In Part 1 of this lesson, your students will compare images of Team USA Olympians and Paralympians to see how clothing and uniforms evolve in response technology, styles, safety protocols, and inclusion policies. From there, in Part 2, they will embark on a project-based team design challenge centered on fulfilling a need for adaptive apparel in their community.

**Notes for Part 2**

There are several assessment options for the design challenge in this lesson plan. It is an enriching and cross-curricular experience that may require no formal assessment other than participation by the team members. Alternately, the written summary requested after each stage of the design phase could be used for a grade. This design challenge also lends itself well to extracurricular clubs, such as robotics, construction, science fair, or community service clubs.

## ANSWER KEY

**Part 1**

On separate paper, students should have at least three differences and three hypothesized explanations for those differences for the four sets of photos, for a maximum of 24 points.

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# Nothing About Us Without Us

## STUDENT ACTIVITY

**Terms to Know:**
*adaptive sports, apparel, carbon fiber, inclusion, prototype, venue*

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The phrase "Nothing about us without us" gained popularity during the disability rights movement to protest when decisions were made about people with disabilities without consulting them. The same is also true for adaptive apparel. Who knows better which jeans are easiest to put on from a wheelchair or how to put a bathing suit on with one arm? Online shopping has made it easier to find adaptive clothing but there is still a long way to go to improve access, styles, and prices.

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In Part 1 of these activities, you will compare images of Team USA Olympians and Paralympians to see how clothing and uniforms evolve in response to technology, styles, safety protocols, and inclusion policies. In Part 2, you will embark on a project-based team design challenge centered on fulfilling a need for adaptive apparel in your community.

**Part 1**

Each pair of photos below shows members of the U.S. Olympic and Paralympic teams from the same sport at different points in history. Examine them closely to see how uniforms and equipment changed over time. On separate paper, list at least three differences between each pair and hypothesize reasons to account for those differences. Your theories might include advances in technology, improved safety, or the move to indoor venues, for example.

## WHEELCHAIR BASKETBALL

Tim Nugent huddle photo


U.S. Paralympic basketball team from 2016

NAME:

CLASS:

DATE:

## SPEED SKATERS

Jack Shea (1932)

Apolo Anton Ohno

NAME:

CLASS:

DATE:

## WHEELCHAIR RACING

Photo from Tokyo 1964

Tatyana McFadden

NAME:

CLASS:

DATE:

## FIGURE SKATING

Dick Button

Brian Boitano (1988)

NAME:

CLASS:

DATE:

**Part 2**

Adaptive clothing comes in many different forms and make life easier for people with many different conditions. For a Paralympian, it might be a cap for a visually impaired swimmer that vibrates as the swimmer approaches the wall at the end of the lane. But it can also be magnetic closures on a shirt instead of buttons, Velcro® instead of zippers on jeans, and Braille labels on socks for "front" and "back" allowing a student dress for school independently. Other adaptations provide opportunities that the able-bodied take for granted. For example, finding a prom dress that is comfortable to wear in a wheelchair shouldn't be impossible. Neither should wearing a required team uniform that fits a unique body shape and takes external medical equipment into account.

For this design challenge, break into teams, look around your community, and ask, "How can we help?" The answer to that question is your assignment. What need is going unmet in your high school or among your friends? Ask your teacher to coordinate interviews with teachers, physical therapists, occupational therapists, adaptive sports coaches, and students who have disabilities or different needs. Check in with local middle and elementary schools, too. The first step is to identify a person with an issue that needs to be addressed. The person you are helping becomes an integral member of your team and must be included in the process. Remember, "nothing about us without us."

In some cases, solutions to the issue your team identifies might already exist but are priced out of a reach for a family. Your team could help by designing and building a personalized version. In other cases, the adaptation could be surprisingly low-tech and obtainable if a member of your team knows how to sew or has access to a workshop. Other ideas might include getting your school's robotics team involved or coordinating with other groups in the community. Creativity and engineering work together in a STEAM design challenge!

The list of steps below will lead you through the design process with guiding questions and prompts. On separate paper, describe your team's experiences during each phase. You will submit that summary to your teacher after your team presents its final product to the class.

## ENGINEERING DESIGN PROCESS

**Step 1: Define your challenge.**

Who is your audience (the person who will be using what you make)? What is the issue that needs a solution? This solution becomes your design challenge. What are your constraints? Did you observe your audience to see the impact how the issue impacts their lives?

NAME:

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**Step 2: Research.**

What, if anything, has already been developed to address this issue? How common of an issue is it? Are there medical conditions to consider? Do you need to invent something completely new? Can you adapt something that already exists?

**Step 3: Brainstorm.**

Any idea is a good idea! Include your audience in the brainstorming session. Save your list of possible project ideas in case the one you choose first does not work out.

**Step 4: Develop an idea.**

Pick one project agreed upon by the team and begin to develop plans on paper. What does it look like? What materials are needed? How does it work? Check in with the intended user for feedback. How does it address the challenge identified?

**Step 5: Prototype and test.**

Construct the first version or working model of your team's project. Were there unforeseen complications? Did fabrication go as planned? Did it work? What did the user think? How did the user's feedback inform your revisions?

**Step 6: Evaluate and improve.**

Revise and redesign your prototype as needed based on its first test. What did you do differently?

United States
Olympic
& Paralympic
Museum

# THE EXTRA MILE

## Additional Resources

# When & Where: Timeline of the Modern Olympic & Paralympic Games

*TEACHERS! Keep this reference guide handy. This information can be used:*

- For historical geography, by mapping locations and name changes over time.
- To develop group study aids such as trivia contests and games or quiz shows.
- As writing prompts and research project topics.
    - For games that were cancelled because of war, the cities where they were scheduled to be held are listed. Can your students identify which Games were affected by those world events?
    - Team USA participated in all the Games except for the summer of 1980. What was the rationale and subsequent fall-out for refusing to participate in the Games then?
    - On your field trip to USOPM, your students will explore the darkest day in Olympic history, the Munich Massacre at the 1972 Summer Games. Who was David Berger and why is he significant to this tragic story?

*In the "Games" column: S = Summer, W = Winter, O = Olympics, P = Paralympics.*

| Year | Games | City | Country |
|---|---|---|---|
| 1896 | SO | Athens | Greece |
| 1900 | SO | Paris | France |
| 1904 | SO | St. Louis | USA |
| 1908 | SO | London | UK |
| 1912 | SO | Stockholm | Sweden |
| 1916 | SO | Scheduled for Berlin | Germany |
| 1920 | SO | Antwerp | Belgium |
| 1924 | SO | Paris | France |
| | WO | Chamonix | France |
| 1928 | SO | Amsterdam | Netherlands |
| | WO | St. Moritz | Switzerland |

| Year | Games | City | Country |
|---|---|---|---|
| 1932 | SO | Los Angeles | USA |
| | WO | Lake Placid | USA |
| 1936 | SO | Berlin | Germany |
| | WO | Garmisch-Partenkirchen | Germany |
| 1940 | SO | Scheduled for Tokyo | Japan |
| | WO | Scheduled for Sapporo | Japan |
| 1944 | SO | Scheduled for London | UK |
| | WO | Scheduled for Cortina | Italy |
| 1948 | SO | London | UK |
| | WO | St. Moritz | Switzerland |
| 1952 | SO | Helsinki | Finland |
| | WO | Oslo | Norway |
| 1956 | SO | Melbourne | Australia |
| | WO | Cortina d'Ampezzo | Italy |
| 1960 | SOP | Rome | Italy |
| | WO | Squaw Valley | USA |
| 1964 | SOP | Tokyo | Japan |
| | WO | Innsbruck | Austria |
| 1968 | SO | Mexico City | Mexico |
| | SP | Tel Aviv | Israel |
| | WO | Grenoble | France |
| 1972 | SO | Munich | West Germany (now Germany) |
| | SP | Heidelberg | West Germany (now Germany) |
| | WO | Sapporo | Japan |
| 1976 | SO | Montreal | Canada |
| | SP | Toronto | Canada |
| | WO | Innsbruck | Austria |
| | WP | Örnsköldsvik | Sweden |
| 1980 | SO | Moscow | USSR (now Russia) |
| | SP | Arnhem | Netherlands |
| | WO | Lake Placid | USA |
| | WP | Geilo | Norway |
| 1984 | SO | Los Angeles | USA |
| | SP | New York/Stokeville | USA/UK |
| | WO | Sarajevo | Yugoslavia (now Bosnia and Herzegovina) |
| | WP | Innsbruck | Austria |

| Year | Games | City | Country |
|---|---|---|---|
| 1988 | SOP | Seoul | South Korea |
| | WO | Calgary | Canada |
| | WP | Innsbruck | Austria |
| 1992 | SOP | Barcelona | Spain |
| | WO | Albertville | France |
| | WP | Tignes - Albertville | France |
| 1994 | WOP | Lillehammer | Norway |
| 1996 | SOP | Atlanta | USA |
| 1998 | WOP | Nagano | Japan |
| 2000 | SOP | Sydney | Australia |
| 2002 | WOP | Salt Lake City | USA |
| 2004 | SOP | Athens | Greece |
| 2006 | WOP | Torino (Turin) | Italy |
| 2008 | SOP | Beijing | China |
| 2010 | WOP | Vancouver | Canada |
| 2012 | SOP | London | UK |
| 2014 | WOP | Sochi | Russia |
| 2016 | SOP | Rio de Janeiro | Brazil |
| 2018 | WOP | PyeongChang | South Korea |
| 2020 | SOP | Tokyo (held in 2021) | Japan |
| 2022 | WOP | Beijing | China |
| 2024 | SOP | Paris | France |
| 2026 | WOP | Milan-Cortina | Italy |
| 2028 | SOP | Los Angeles | USA |

# Team USA: Olympic & Paralympic Hall of Fame Inductees

Established in 1979, the U.S. Olympic and Paralympic Hall of Fame celebrates the achievements of Team USA's premier athletes and teams, as well as the impact of legendary coaches and special contributors. Since the first Hall of Fame class was inducted in 1983, nearly 150 individuals and teams have been honored for their contributions to the U.S. Olympic and Paralympic movements. Beginning with a new induction class in 2019, nominations and awards take place every two years. Inductee classes are comprised of five Olympians, three Paralympians, two legends, one team, one coach and one special contributor. The U.S. Olympic and Paralympic Hall of Fame is one of the first major sports hall of fames to incorporate fan voting into its selection process.

*TEACHERS! On your field trip to USOPM, your students will see the Hall of Fame and virtually engage with its elite members. Below is a list of inductees. This information can be used in your classroom to generate inquiry-based research projects across the curriculum. There is a searchable database of HOF members online:* www.teamusa.org/hall-of-fame/hall-of-fame-members.

- Examine the criteria for inclusion in the Olympic and Paralympic Hall of Fame. Create a nomination form based on athletes who competed in the Games in or closest to the year you were born. Present a final ballot to your class, tally the results, and hold a mock induction ceremony.
- Prepare a multi-media biography of two HOF-ers who are new to you, one Olympian and one Paralympian. Include backgrounds, career highlights, and off-the-field accomplishments.
- Add new inductees to this list.
- Research the roles of the Legends and the Special Contributors. Who are they? What did they do to earn their spot? Who would you like to see added?
- Data Analysis: Men vs. Women, Team vs. Individual, Summer vs. Winter, Most/Least Popular Sports

| Induction Years | Sports | Game Years |
|---|---|---|
| **1983** | | |
| Cassius Clay (Muhammad Ali) | Boxing | 1960 |
| Bob Beamon | Track and Field | 1968 |
| Dick Button | Figure Skating | 1948, 1952 |
| Babe Didrikson | Track and Field | 1932 |

| Induction Years | Sports | Game Years |
|---|---|---|
| Harrison Dillard | Track and Field | 1948, 1952 |
| Eddie Eagan | Bobsled, Boxing | 1920, 1924, 1932 |
| Ray Ewry | Track and Field | 1900, 1904, 1908 |
| Peggy Fleming | Figure Skating | 1964, 1968 |
| Eric Heiden | Speedskating | 1976, 1980 |
| Rafer Johnson | Track and Field | 1956, 1960 |
| Bob Mathias | Track and Field | 1948, 1952 |
| Al Oerter | Track and Field | 1956, 1960, 1964, 1968 |
| Jesse Owens | Track and Field | 1936 |
| Bob Richards | Track and Field | 1948, 1952, 1956 |
| Wilma Rudolph | Track and Field | 1956, 1960 |
| Don Schollander | Swimming | 1964, 1968 |
| Mark Spitz | Swimming | 1968, 1972 |
| Jim Thorpe | Track and Field | 1912 |
| Johnny Weissmuller | Swimming, Water Polo | 1924, 1928 |
| 1980 Olympic Men's Ice Hockey Team | Ice Hockey | 1980 |
| Avery Brundage | Special Contributor | |
| **1984** | | |
| Duke Kahanamoku | Swimming, Water Polo | 1912, 1920, 1924 |
| Billy Mills | Track and Field | 1964 |
| John Naber | Swimming | 1976 |
| Parry O'Brien | Track and Field | 1952, 1956, 1960, 1964 |
| Frank Shorter | Track and Field | 1972, 1976 |
| Bill Toomey | Track and Field | 1968 |
| Frank Wykoff | Track and Field | 1928, 1932, 1936 |
| 1960 Olympic Men's Basketball Team | Basketball | 1960 |
| Col. F. Don Miller | Special Contributor | |
| **1985** | | |
| Ralph Boston | Track and Field | 1960, 1964, 1968 |
| Dan Gable | Wrestling | 1972 |
| Alvin Kraenzlein | Track and Field | 1900 |
| Sugar Ray Leonard | Boxing | 1976 |
| Carl Lewis | Track and Field | 1984, 1988, 1992 |
| Greg Louganis | Diving | 1976, 1984, 1988 |
| Pat McCormick | Diving | 1952, 1956 |
| Edwin Moses | Track and Field | 1976, 1984, 1988 |
| Mary Lou Retton | Gymnastics | 1984 |

| Induction Years | Sports | Game Years |
|---|---|---|
| Wyomia Tyus | Track and Field | 1964, 1968 |
| Henry Iba | Special Contributor | |
| **1986** | | |
| Glenn Davis | Track and Field | 1956, 1960 |
| Bruce Jenner (Caitlyn Jenner) | Track and Field | 1972, 1976 |
| Debbie Meyer | Swimming | 1968 |
| 1956 Olympic Men's Basketball Team | Basketball | 1956 |
| Robert J. Kane | Special Contributor | |
| **1987** | | |
| Shirley Babashoff | Swimming | 1972, 1976 |
| Donna de Varona | Swimming | 1960, 1964 |
| Floyd Patterson | Boxing | 1952 |
| LeRoy T. Walker | Special Contributor | |
| **1988** | | |
| Tenley Albright | Figure Skating | 1952, 1956 |
| Mal Whitfield | Track and Field | 1948, 1952 |
| Charles Daniels | Legend, Swimming | 1904, 1908 |
| 1964 Olympic Men's Basketball Team | Basketball | 1964 |
| Jim McKay | Special Contributor | |
| **1989** | | |
| John Davis | Weightlifting | 1940, 1948, 1952 |
| Lee Evans | Track and Field | 1968, 1972 |
| Joe Frazier | Boxing | 1964 |
| Bobby Joe Morrow | Track and Field | 1956, 1960 |
| Mel Sheppard | Legend, Track and Field | 1908, 1912 |
| 1960 Olympic Men's Ice Hockey Team | Ice Hockey | 1960 |
| Roone Arledge | Special Contributor | |
| **1990** | | |
| Tracy Caulkins | Swimming | 1980, 1984 |
| George Foreman | Boxing | 1968 |
| Scott Hamilton | Figure Skating | 1980, 1984 |
| Tommy Kono | Weightlifting | 1952, 1956, 1960 |
| Sammy Lee | Diving | 1948, 1952 |
| Jack Kelly, Sr. | Legend, Rowing | 1920, 1924 |
| Asa Smith Bushnell | Special Contributor | |

| Induction Years | Sports | Game Years |
|---|---|---|
| **1991** | | |
| Lee Calhoun | Track and Field | 1956, 1960 |
| Bart Conner | Gymnastics | 1976, 1980, 1984 |
| Willie Davenport | Bobsled, Track and Field | 1964, 1968, 1972, 1976, 1980 |
| Dorothy Hamill | Figure Skating | 1976 |
| Peter Vidmar | Gymnastics | 1980, 1984 |
| Charley Paddock | Legend, Track and Field | 1920, 1924, 1928 |
| William E. Simon | Special Contributor | |
| **1992** | | |
| Milt Campbell | Track and Field | 1952, 1956 |
| Connie Carpenter | Cycling, Speedskating | 1984, 1972 |
| Dick Fosbury | Track and Field | 1968 |
| Col. Micki King | Diving | 1968, 1972 |
| Phil Mahre | Alpine Skiing | 1980, 1984 |
| Helene Madison | Legend, Swimming | 1932 |
| Col. Don Hull | Special Contributor | |
| Jack Kelly, Jr. | Special Contributor | 1948, 1952, 1956, 1960 |
| **2004** | | |
| Matt Biondi | Swimming | 1984, 1988, 1992 |
| Bonnie Blair | Speedskating | 1984, 1988 1992, 1994 |
| Janet Evans | Swimming | 1988, 1992, 1996 |
| Florence Griffith Joyner | Track and Field | 1984, 1988 |
| Dan Jansen | Speedskating | 1984, 1988, 1992, 1994 |
| Jackie Joyner-Kersee | Track and Field | 1984, 1988, 1992, 1996 |
| Randy Snow | Para Track and Field, Wheelchair Basketball, Wheelchair Tennis | 1984, 1992, 1996, 2000 |
| Alice Coachman | Legend, Track and Field | 1948 |
| 1996 Olympic Women's Soccer Team | Soccer | 1996 |
| Bud Greenspan | Special Contributor | |
| **2006** | | |
| Evelyn Ashford | Track and Field | 1976, 1980, 1984, 1988, 1992 |
| Rowdy Gaines | Swimming | 1980, 1984 |
| Diana Golden | Para Alpine Skiing | 1988 |
| Bob Hayes | Track and Field | 1964 |
| Shannon Miller | Gymnastics | 1992, 1996 |
| Kristi Yamaguchi | Figure Skating | 1992 |
| Jack Shea | Legend, Speedskating | 1932 |
| 1984 Olympic Men's Gymnastics Team | Gymnastics | 1984 |

| Induction Years | Sports | Game Years |
|---|---|---|
| Herb Brooks | Coach, Ice Hockey | 1980, 2002 |
| Dick Ebersol | Special Contributor | |
| **2008** | | |
| Bruce Baumgartner | Wrestling | 1984, 1988, 1992, 1996 |
| Joan Benoit | Track and Field | 1984 |
| Brian Boitano | Figure Skating | 1984, 1988, 1994 |
| Oscar De La Hoya | Boxing | 1992 |
| Karch Kiraly | Volleyball | 1984, 1988, 1996 |
| John Morgan | Para Swimming | 1984, 1992 |
| J. Michael Plumb | Equestrian | 1960, 1964, 1968, 1972, 1976, 1980, 1984, 1992 |
| David Robinson | Basketball | 1988, 1992, 1996 |
| Amy Van Dyken | Swimming | 1996, 2000 |
| Lones Wigger, Jr. | Shooting | 1964, 1968, 1972, 1980 |
| Carol Heiss | Legend, Figure Skating | 1956, 1960 |
| 1996 Olympic Women's Gymnastics Team | Gymnastics | 1996 |
| Carlo Fassi | Coach, Figure Skating | 1968, 1976, 1980, 1988 |
| Frank Marshall | Special Contributor | |
| **2009** | | |
| Teresa Edwards | Basketball | 1984, 1988, 1992, 1996, 2000 |
| Michael Johnson | Track and Field | 1992, 1996, 2000 |
| Mary T. Meagher | Swimming | 1984, 1988 |
| Picabo Street | Alpine Skiing | 1994, 1998, 2002 |
| Willye White | Track and Field | 1956, 1960, 1964, 1968, 1972 |
| Sarah Will | Para Alpine Skiing | 1992, 1994, 1998, 2002 |
| Andrea Mead Lawrence | Legend, Alpine Skiing | 1948, 1952, 1956 |
| 1992 Olympic Men's Basketball Team | Basketball | 1992 |
| Abie Grossfeld | Coach, Gymnastics | 1964, 1968, 1972, 1984, 1988 |
| Kevan Gosper | Special Contributor | |
| Peter Ueberroth | Special Contributor | |
| **2012** | | |
| Gail Devers | Track and Field | 1988, 1992, 1996, 2000, 2004 |
| Jean Driscoll | Para Track and Field | 1988, 1992, 1996, 2000 |
| Lisa Fernandez | Softball | 1996, 2000, 2004 |
| Gary Hall, Jr. | Swimming | 1996, 2000, 2004 |
| Kristine Lilly | Soccer | 1996, 2000, 2004 |
| Dan O'Brien | Track and Field | 1996 |

| Induction Years | Sports | Game Years |
|---|---|---|
| Jenny Thompson | Swimming | 1992, 1996, 2000, 2004 |
| James Connolly | Legend, Track and Field | 1896, 1900, 1906 |
| 2004 Olympic Women's Softball Team | Softball | 2004 |
| Ed Temple | Coach, Track and Field | 1960, 1964, 1980 |
| James L. Easton | Special Contributor | |
| Ted Stevens | Special Contributor | |
| **2019** | | |
| Candace Cable | Para Alpine skiing, Para Nordic Skiing, Para Trac Field | 1980, 1988, 1992, 1992, 1994, 1996, 1998, 2002, 2006 |
| Lisa Leslie | Basketball | 1996, 2000, 2004, 2008 |
| Nastia Liukin | Gymnastics | 2008 |
| Misty May-Treanor | Beach Volleyball | 2004, 2008, 2012 |
| Apolo Anton Ohno | Short Track Speedskating | 2006, 2008, 2010 |
| Erin Popovich | Para Swimming | 2000, 2004, 2008 |
| Dara Torres | Swimming | 1984, 1988, 1992, 2000, 2008 |
| Chris Waddell | Para Alpine Skiing, Para Track and Field | 1992, 1994, 1996, 1998, 2000, 2002, 2004 |
| 1998 Olympic Women's Ice Hockey Team | Ice Hockey | 1998 |
| John Carlos | Legend, Track and Field | 1968 |
| Tommie Smith | Legend, Track and Field | 1968 |
| Ron O'Brien | Coach, Diving | |
| Tim Nugent | Special Contributor | |


United States
Olympic
& Paralympic
Museum

# OLYMPIC GAMES

## Puzzles and Challenges

NAME:

CLASS:

DATE:

# Cryptogram: Voice of a Champion

Tennis player Serena Williams is a legendary athlete whose accomplishments extend far beyond four trips to the Olympics and four gold medals. She has won 23 major tennis titles and has been called the greatest female tennis player of all time. Off the court, she is known for her dedication to her family and contributions to social activism. Solve this cryptogram to read her advice for not letting where you come from limit where you can go. Challenge! Can you decipher the quote without looking at the key?

**Key**

| A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 23 | 9 | 15 | 7 | 24 | 5 | 25 | 4 | 18 | 14 | 21 | 22 |

| N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 3 | 11 | 6 | 26 | 12 | 1 | 16 | 13 | 2 | 17 | 19 | 10 |

| 4 | 1 | | 15 | 3 | 7 | 12 | 20 | | 1 | | 22 | 8 | 1 | 1 | 7 | 26 | | 2 | 25 | 8 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 19 | 3 | 16 | 26 | | 23 | 8 | 9 | 14 | 5 | 26 | 3 | 16 | 20 | 15 | | 4 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 8 | 20 | 15 | | 2 | 25 | 7 | 26 | 7 | | 19 | 3 | 16 | | 9 | 3 | 22 | 7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 24 | 26 | 3 | 22 | | 4 | 24 | | 19 | 3 | 16 | | 25 | 8 | 13 | 7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 15 | 26 | 7 | 8 | 22 | 12 | | 8 | 20 | 15 | | 5 | 3 | 8 | 21 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 1 | 25 | 8 | 1 | | 12 | | 8 | 21 | 21 | | 1 | 25 | 8 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| 22 | 8 | 1 | 1 | 7 | 26 | 12 |
|---|---|---|---|---|---|---|

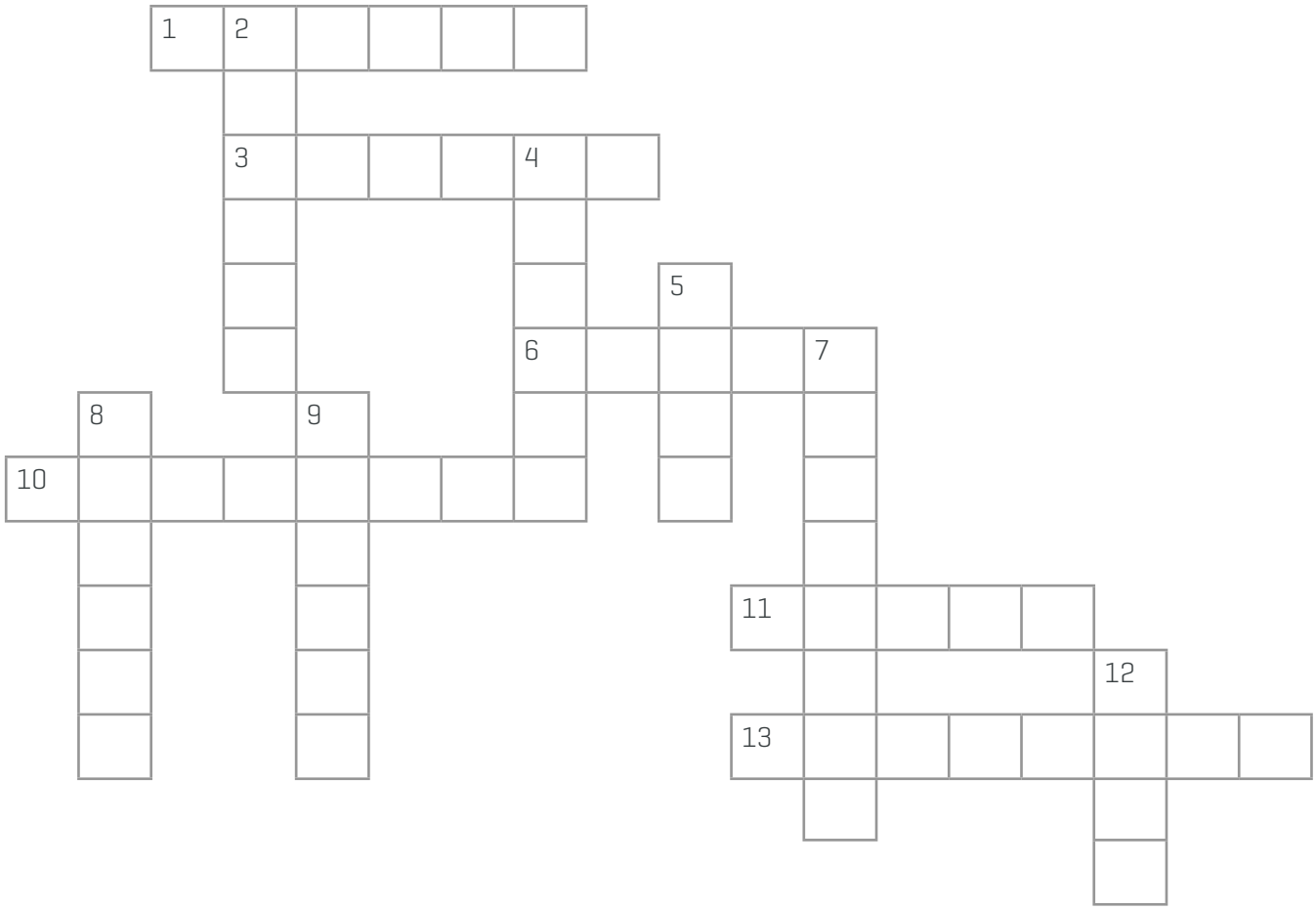
NAME:

CLASS:

DATE:

# Crossword: Team USA Medal Winners

This puzzle has the 13 American Olympians and Paralympian who have won the most medals . Each clue has the person's first name, their sport, whether they are an Olympian (O) or Paralympian (P), the year of their most recent Games, and the total number of medals they won (gold, silver, and bronze combined). Fill in the puzzle with their last names, with some online investigating if necessary!




**Down**

2. Carl _____ : Shooting (O), 1924, 11
4. Bart _____ : Athletics (P), 2000, 20
5. Trischa _____ : Swimming (P), 2004, 55
7. Jenny _____ : Swimming (O), 2004, 12
8. John _____ : Swimming (P), 1992, 15
9. Michael _____ : Swimming (O), 2016, 28
12. Sarah _____ : Alpine Skiing (P), 2002, 13

**Across**

1. Dara _____ : Swimming (O), 2012, 12
3. Matt _____ : Swimming (O), 1992, 11
6. Elizabeth _____ : Swimming (P), 2000, 17
10. Natalie _____ : Swimming (O), 2008, 12
11. Mark _____ : Swimming (O), 1972, 11
13. Erin _____ : Swimming (P), 2008, 19

NAME:

CLASS:

DATE:

# Word Search: Sports No More

The locations of the Olympic and Paralympic Games are announced years in advance so that the host city and country have time to prepare. Find the names of 14 countries that have been select to host the Games at least twice, up to the year 2028.  Can you guess which country has hosted the most Games?

Q H F R Y W O Z H B J M G D T P R M
H J X R W M L W R H W M L N E V U O
H X D W O G L N D Q I D O O U B R T
L P C R Y Q A B A N D Y E M Q S A O
M G B S W O U Y R G B A C K O E C R
D I S T A N C E P L U N G E R M Q B
W I L E M U A P E D U E J O C S U O
A O K I L L A B T I W T N O V M E A
B W R L T T A U O P J A E P A M T T
F Z P H O A G C G U U C B K A L S I
Q X D L T O R N R T W A M E C Z X N
T F E P F E I Y I O F R I P W I P G
Y P O W W R N C P S S T L H L X R I
L L A H O Q S O O A U S C K E O G C
O R Z J S J X Y T K T A E B I S Q S
J A I A L P I N I S M R P W B J C R
O K G N I L B M U T C L O H Y K J I
S S Z O H O M V F Q W E R L U H Z Z

Aeronautics
Alpinism
Arts
Bandy
Cricket
Croquet
Distance plunge
Jeu de paume
Lacrosse
Military patrol
Motorboating
Pelota
Polo
Racquets
Rope climb
Roque
Skijoring
Stone throw
Tug of war
Tumbling

# Cryptogram, Crossword, and Word Search

## TEACHER ANSWER KEY

**Cryptogram**

"It doesn't matter what your background is and where you come from. If you have dreams and goals, that's all that matters."

**Crossword**

- Across: 1. Torres, 3. Biondi, 6. Scott, 10. Coughlin, 11. Spitz, 13. Popovich
- Down: 2. Osburn, 4. Dodson, 5. Zorn, 7. Thompson, 8. Morgan, 9. Phelps, 12. Will

**Word Search**

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Q | H | F | R | Y | W | O | Z | H | B | J | M | G | D | **T** | P | R | **M** |
| H | J | X | **R** | W | M | L | W | R | H | W | M | L | N | **E** | V | U | **O** |
| H | X | D | W | **O** | G | L | N | D | Q | I | D | O | O | **U** | B | **R** | **T** |
| L | P | C | R | Y | **Q** | A | **B** | **A** | **N** | **D** | **Y** | E | M | **Q** | S | **A** | **O** |
| **M** | G | B | S | W | O | **U** | Y | R | G | B | A | C | K | **O** | **E** | **C** | **R** |
| **D** | **I** | **S** | **T** | **A** | **N** | **C** | **E** | **P** | **L** | **U** | **N** | **G** | **E** | **R** | M | **Q** | **B** |
| **W** | I | **L** | **E** | **M** | **U** | **A** | **P** | **E** | **D** | **U** | **E** | **J** | **O** | **C** | S | **U** | **O** |
| A | **O** | K | **I** | L | **L** | **A** | B | **T** | I | W | **T** | **N** | O | V | M | **E** | **A** |
| B | W | **R** | L | **T** | **T** | **A** | **U** | O | P | J | **A** | **E** | P | A | M | **T** | **T** |
| F | Z | P | **H** | **O** | **A** | **G** | **C** | **G** | U | **U** | C | **B** | **K** | A | L | **S** | **I** |
| Q | X | D | **L** | **T** | **O** | **R** | **N** | **R** | **T** | W | **A** | **M** | E | **C** | Z | X | **N** |
| T | F | **E** | **P** | **F** | **E** | **I** | **Y** | **I** | **O** | F | **R** | **I** | P | W | **I** | P | **G** |
| Y | **P** | **O** | **W** | W | **R** | **N** | **C** | **P** | S | **S** | **T** | **L** | H | L | X | **R** | I |
| L | **L** | **A** | H | **O** | Q | **S** | **O** | O | **A** | U | **S** | **C** | K | E | O | G | **C** |
| **O** | **R** | Z | **J** | S | J | X | Y | **T** | K | **T** | A | **E** | B | I | S | Q | S |
| J | A | **I** | **A** | **L** | **P** | **I** | **N** | **I** | **S** | **M** | **R** | **P** | W | B | J | C | R |
| O | **K** | **G** | **N** | **I** | **L** | **B** | **M** | **U** | **T** | C | L | **O** | H | Y | K | J | I |
| **S** | S | Z | O | H | O | M | V | F | Q | W | E | **R** | **L** | U | H | Z | Z |

United States
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# BEYOND THE MEDAL

## Curriculum Correlations

# Beyond the Medal: Curriculum Standards

We know how important it is for you to justify field trips and document how instructional time is spent outside of your classroom. With this in mind, the activities in this Teacher's Guide and the experiences your students have during their field trip to the United States Olympic & Paralympic Museum are correlated to the Next Generation Science Standards, Common Core State Standards for English Language Arts, Common Core State Standards for Mathematics, C3 Framework for State Social Studies Standards, National Core Arts Standards, and National Health Education Standards. These connections are arranged by content area and grade level. The grade level expectations and evidence outcomes for the Colorado Academic Standards follow the national curricula.

## NATIONAL CURRICULUM CORRELATIONS

Next Generation Science Standards: HS-PS1-1, HS-PS1-2, HS-PS2-6, HS-LS1-2, HS-LS1-6, HS-ETS1-1, HS-ETS1-2, HS-ETS1-3

Common Core State Standards for English Language Arts

- Grades 9-10: CCSS.ELA-Literacy.RH.9-10.1, CCSS.ELA-Literacy.RH.9-10.2, CCSS.ELA-Literacy.RH.9-10.3, CCSS.ELA-Literacy.RH.9-10.4, CCSS.ELA-Literacy.RH.9-10.6, CCSS.ELA-Literacy.RH.9-10.7, CCSS.ELA-Literacy.RH.9-10.9, CCSS.ELA-Literacy.RST.9-10.1, CCSS.ELA-Literacy.RST.9-10.4, CCSS.ELA-Literacy.RST.9-10.5, CCSS.ELA-Literacy.RST.9-10.7, CCSS.ELA-Literacy.WHST.9-10.1, CCSS.ELA-Literacy.WHST.9-10.2, CCSS.ELA-Literacy.WHST.9-10.4, CCSS.ELA-Literacy.WHST.9-10.7, CCSS.ELA-Literacy.WHST.9-10.9, CCSS.ELA-Literacy.SL.9-10.1, CCSS.ELA-Literacy.SL.9-10.2, CCSS.ELA-Literacy.SL.9-10.4
- Grades 11-12: CCSS.ELA-Literacy.RH.11-12.1, CCSS.ELA-Literacy.RH.11-12.2, CCSS.ELA-Literacy.RH.11-12.3, CCSS.ELA-Literacy.RH.11-12.4, CCSS.ELA-Literacy.RH.11-12.6, CCSS.ELA-Literacy.RH.11-12.7, CCSS.ELA-Literacy.RH.11-12.9, CCSS.ELA-Literacy.RST.11-12.1, CCSS.ELA-Literacy.RST.11-12.4, CCSS.ELA-Literacy.RST.11-12.5, CCSS.ELA-Literacy.RST.11-12.7, CCSS.ELA-Literacy.WHST.11-12.1, CCSS.ELA-Literacy.WHST.11-12.2, CCSS.ELA-Literacy.WHST.11-12.4, CCSS.ELA-Literacy.WHST.11-12.7, CCSS.ELA-Literacy.WHST.11-12.9, CCSS.ELA-Literacy.SL.11-12.1, CCSS.ELA-Literacy.SL.11-12.2, CCSS.ELA-Literacy.SL.11-12.4

Common Core State Standards for Mathematics: CCSS.Math.Practice.MP1, CCSS.Math.Practice.MP3, CCSS.Math.Practice.MP4, CCSS.Math.Practice.MP5

C3 Framework for State Social Studies Standards: D1.2.9-12, D1.5.9-12, D2.Civ.5.9-12, D2.Civ.14.9-12, D2.His.1.9-12, D2.His.2.9-12, D2.His.3.9-12, D2.His.4.9-12, D2.His.5.9-12, D2.His.14.9-12, D2.His.15.9-12, D2.His.16.9-12

National Core Arts Standards, Visual Arts: VA:Cr1.2.Ia, VA:Cr3.1.Ia, VA:Pr6.1.Ia, VA:Cn10.1.Ia, VA:Cn11.1.Ia

National Health Education Standards: 1.8.9, 2.12.2, 2.12.6, 4.12.1, 6.12.3, 8.12.1, 8.12.4

**COLORADO ACADEMIC STANDARDS**
*Grade Level Expectations & Evidence Outcomes*

Science: 1.1.a, 1.2.a, 1.2.d, 2.1.b, 2.3.b

Reading, Writing, and Communicating

- Grades 9-10: 1.1.a, 1.1.b, 1.2.a, 2.2.a, 2.2.b, 2.2.c, 3.1.a, 3.2.a, 3.4.d, 4.1.a, 4.1.c
- Grades 11-12: 1.1.a, 1.1.b, 1.2.a, 2.2.a, 2.2.b, 2.2.c, 3.1.a, 3.2.a, 3.4.d, 4.1.a, 4.1.e

Social Studies: 1.1.a, 1.1.b, 1.1.d, 1.2.a, 1.2.b, 1.2.c, 1.2.d, 1.2.f, 1.2.g, 1.2.h, 1.3.a, 1.3.f, 4.1.a

Visual Arts: 1.1.d, 1.2.a, 1.3.a, 3.1.b, 4.2.b

Comprehensive Health: 4.1.d

Physical Education: 1.1.b

Computer Science: 1.4.b

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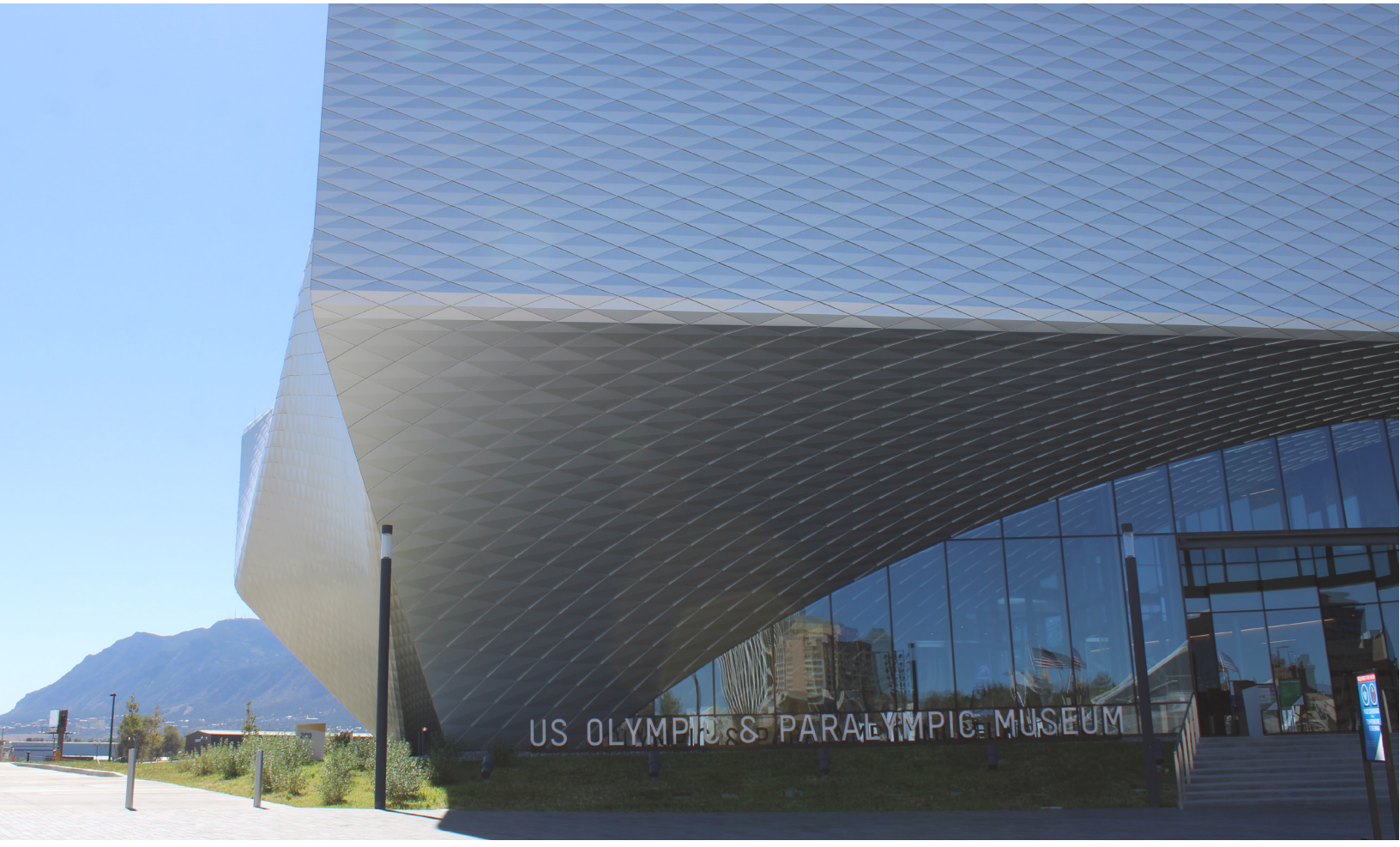

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