Name: _____ Date: _____

Simone Biles and the Vault

Reading level 10 (6th grade) · 1165 words

Who is Simone Biles? She is an American gymnast, born in Columbus, Ohio, in 1997. Through 2023 she had won 30 medals at the World Championships, 23 of them gold. No one in the history of the sport has won more. One of her moves, a vault, now carries her name in the sport's rule book. This book follows that vault from the runway to the judges' table. It shows how the move works, how it is scored, and how a move earns a name.

She won her first World Championships all-around title in 2013. The all-around is four events: vault, uneven bars, balance beam and floor. Each event gets its own score, and the four scores are added. By the end of the 2024 Games in Paris, she had 11 Olympic medals in all, and seven of them were gold. Every total in this book runs through those Games, so a later meet could change them.

A vault is the quickest event in the women's sport. The athlete runs down a runway that may be up to 25 meters long and jumps onto a springboard. She pushes off a table with both hands. Then she flips and twists in the air and lands. The sport's governing body, the International Gymnastics Federation, or FIG, says that a whole vault takes less than ten seconds from start to finish. Vault and floor are the only events that both women and men compete in.

Biles uses the Yurchenko entry, a family of vaults named for Natalia Yurchenko. She does a round-off onto the springboard, then a back handspring onto the table. The table stands 125 centimeters high, about four feet. The rule book divides every vault into four phases: the first flight, the push off the table, the second flight and the landing. Judges look for faults in each phase, so the vault is checked piece by piece, not as one blur.

What happens in the air is physics. A coach told the Philadelphia Inquirer that a vaulter turns the energy of her run into the energy of her spin. A sports scientist estimated from video that Biles is probably above 18 miles an hour near the end of the runway. Once she leaves the table, only gravity acts on her. After that, she can change how fast she spins only by changing the shape of her body.

Her double pike is hard because of something called the moment of inertia. That phrase means how a body's mass is spread out. The more a body stretches out, the harder it is to spin. A tight tuck spins fast, because the mass stays close to the center. In a pike, the legs stay straight and the body folds only at the hips. More of her sits far from the center, so she spins more slowly. The Inquirer says the same turns would be easier in a tight somersault. She chooses the harder shape.

How high does she go? We found no official measurement. NBC estimated that her feet reach about 12 feet above the mat when she is upside down. The Inquirer wrote only that she rises more than two body lengths. The two sources guessed in different ways, so treat both numbers as estimates and not as measurements. Judges do watch height, though. FIG's guide to the vault says the gymnast's body must rise above the table.

Now the score. A vault score has two parts. The first part is difficulty, and a table fixes it, so no judge decides it. Her double pike is listed at 6.4, the highest value for any vault in the women's rule book. The second part is execution. It starts at 10, and the judges subtract points for every fault they see. In a vault final, each gymnast does two vaults, and the two scores are averaged.

Deductions come in steps of 0.10, 0.30 and 0.50, and a fall costs a full point or more. On a vault the faults are easy to picture. They include bent knees, legs that come apart, poor body posture, an extra step or a hop on the landing, and a landing outside the marked lines on the mat. The rule book measures each fault against a perfect vault. Only a perfect vault keeps all ten points.

How does a move get a name? FIG's rule says the gymnast must first do the new skill at an official FIG competition. On bars, beam and floor, the skill must be rated at least C, worth 0.3 of a point, and the technical committee must confirm it. A vault gets a number instead of a letter. Before the meet, the gymnast sends in a video of the skill. At the meet, she must do it without a major fault. FIG calls a name a way to give a gymnast eternal recognition.

Biles first did the double pike at a U.S. meet in 2021. A name needs a FIG meet, so the vault had to wait. At the World Championships in Antwerp in October 2023, she landed it in qualifying. In November FIG announced the name: the Biles 2. The 2 is there because a different vault of hers was named in 2018. That first vault is a round-off with a half turn, then a front somersault with two twists. It is simply the Biles.

By July 2024, FIG counted five skills with her name in the women's rule book: two vaults, two on the floor and a beam dismount. Only Nellie Kim, with seven, has more. Values can change over the years. FIG announced the first vault at 6.40 in 2018, and the rule book for 2025 to 2028 lists it at 6.00. FIG's committee says it weighs risk and the safety of gymnasts when it sets a value for a new skill.

Her path had a hard stretch. In the team final at the Tokyo Games, held in 2021, she planned a vault with two and a half twists but finished only one and a half. "I had no idea where I was in the air," she said that week. Gymnasts call this the twisties. A gymnast who does not know where she is cannot know how she will land. She left the team final to stay safe, and she withdrew from every individual final except the beam. In the beam final she came back and won a bronze medal.

She returned to the World Championships in Antwerp in October 2023, two years after her last international meet. In Paris in 2024 she won the Olympic all-around with 59.131 points, at age 27. As of October 2026 she was not competing. On October 24 she made a surprise visit to the World Championships in Rotterdam. She said it was "nice to be in this atmosphere again." FIG wrote that she has not said whether she will return to competition. The Biles 2 is still in the rule book, listed at 6.4, the highest value for any vault.

Questions

1. Why is a double pike harder to spin than a tight tuck?

A. The legs are folded tighter
B. The springboard pushes less
C. More of the body's mass sits far from the center

2. Why does this book call the two height figures estimates?

A. The authors found no official measurement, and each source guessed in its own way
B. The vault has no height
C. Gymnasts are never filmed

3. What does the '2' in 'Biles 2' show?

A. It was her second try at the skill
B. It is the second-hardest vault
C. A different vault of hers was named earlier, in 2018

4. In the sentence 'A sports scientist estimated from video,' what does estimated mean?

A. Measured exactly
B. Roughly worked out
C. Timed by laser

5. What must a gymnast do before a new skill can be named for her?

A. Win an Olympic medal
B. Do it at an official FIG competition without a major fault, and have the committee confirm it
C. Teach it to other gymnasts first

Words to know

pike: folded at hips
execution: how well done
estimated: roughly worked out
Yurchenko: a vault type
twisties: lost air sense

Answer key: Simone Biles and the Vault

1. C. More of the body's mass sits far from the center
2. A. The authors found no official measurement, and each source guessed in its own way
3. C. A different vault of hers was named earlier, in 2018
4. B. Roughly worked out
5. B. Do it at an official FIG competition without a major fault, and have the committee confirm it