Claim / Data Point Supported	Citation	Link
Columbia disaster occurred Feb 1, 2003, killing all 7 astronauts on board	Wikipedia: STS-107	https://en.wikipedia.org/wiki/STS-107
Columbia launched Jan 16, 2003, for a 16-day science mission (STS-107)	Wikipedia: STS-107	https://en.wikipedia.org/wiki/STS-107
Cause: Foam insulation broke off during launch, striking left wing, damaging thermal protection; led to breakup during reentry	Space Safety Magazine	https://www.spacesafetymagazine.com/space-disasters/columbia-disaster/
Columbia Accident Investigation Board (CAIB) found technical and organizational failures; 29 recommendations issued	CRS Summary of CAIB Report (NASA)	https://www.nasa.gov/wp-content/uploads/static/history/columbia/Troxell/Columbia%20Web%20Site/Documents/Congress/CRS%20Summary%20of%20CAIB%20Report.pdf
NASA grounded shuttle fleet after Columbia, made major safety/cultural changes	CNN	https://ktvz.com/news/national-world/cnn-world/2024/04/13/5-ways-the-columbia-disaster-changed-spaceflight-forever/
Kalpana Chawla: Born March 17, 1962, Karnal, Haryana, India; 4th child; parents Banarasi Lal & Sanjyothi Chawla	Wikipedia: Kalpana Chawla	https://en.wikipedia.org/wiki/Kalpana_Chawla
Attended Tagore Baal Niketan Senior Secondary School, Karnal	Wikipedia: Kalpana Chawla	https://en.wikipedia.org/wiki/Kalpana_Chawla
Bachelor's in aeronautical engineering from Punjab Engineering College, Chandigarh (1982)	Smithsonian Air & Space	https://airandspace.si.edu/stories/editorial/kalpana-chawla
Master's in aerospace engineering from University of Texas at Arlington (1984)	Smithsonian Air & Space	https://airandspace.si.edu/stories/editorial/kalpana-chawla
PhD in aerospace engineering from University of Colorado Boulder (1988)	Smithsonian Air & Space	https://airandspace.si.edu/stories/editorial/kalpana-chawla
Married Jean-Pierre Harrison in 1983; became US citizen in 1991	Wikipedia: Kalpana Chawla	https://en.wikipedia.org/wiki/Kalpana_Chawla
Joined NASA Ames Research Center in 1988, specialized in fluid dynamics of aircraft	NASA Biographical Data	https://www.nasa.gov/wp-content/uploads/2020/09/chawla_kalpana.pdf
Held pilot licenses for airplanes, gliders, and seaplanes	NASA Biographical Data	https://www.nasa.gov/wp-content/uploads/2020/09/chawla_kalpana.pdf
Selected as NASA astronaut in 1994, began training in 1995	NASA Biographical Data	https://www.nasa.gov/wp-content/uploads/2020/09/chawla_kalpana.pdf
First spaceflight: STS-87 (Nov 1997), mission specialist and robotic arm operator	Smithsonian Air & Space	https://airandspace.si.edu/stories/editorial/kalpana-chawla
STS-87: 6 astronauts, Columbia, 16 days, 252 Earth orbits, microgravity research	Wikipedia: Kalpana Chawla	https://en.wikipedia.org/wiki/Kalpana_Chawla
STS-87 crew: Kevin Kregel, Steven Lindsey, Kalpana Chawla, Winston Scott, Takao Doi, Leonid Kadenyuk	Wikipedia: STS-87	https://en.wikipedia.org/wiki/STS-87
Spartan 201 satellite malfunctioned, retrieved by spacewalk (Scott & Doi)	Smithsonian Air & Space	https://airandspace.si.edu/stories/editorial/kalpana-chawla
NASA's previous human space programs: Mercury, Gemini, Apollo 11	Smithsonian National Air and Space Museum	https://airandspace.si.edu/exhibitions/human-spaceflight
Challenger disaster (1986) caused by O-ring seal failure, 7 crew killed	Smithsonian National Air and Space Museum	https://airandspace.si.edu/explore-and-learn/topics/space-shuttle/disasters.cfm
Columbia STS-107 crew: Rick Husband, William McCool, Michael Anderson, Ilan Ramon, Kalpana Chawla, David Brown, Laurel Clark	Wikipedia: STS-107	https://en.wikipedia.org/wiki/STS-107
STS-107: Over 80 experiments, including water recycling, biology, solar research	Smithsonian Air & Space	https://airandspace.si.edu/stories/editorial/kalpana-chawla
SPACEHAB pressurized module used for experiments	Wikipedia: STS-107	https://en.wikipedia.org/wiki/STS-107
Foam strike at 81 seconds after launch, 750g piece at ~700-800 km/h	Space Safety Magazine	https://www.spacesafetymagazine.com/space-disasters/columbia-disaster/
Foam loss from external tank had occurred on previous missions but was not previously catastrophic	CNN	https://ktvz.com/news/national-world/cnn-world/2024/04/13/5-ways-the-columbia-disaster-changed-spaceflight-forever/
During reentry, hot gases entered wing, causing loss of control, rapid depressurization, and crew death	Space Safety Magazine	https://www.spacesafetymagazine.com/space-disasters/columbia-disaster/
Crew's last communication: "Roger" from commander Rick Husband	Wikipedia: STS-107	https://en.wikipedia.org/wiki/STS-107
CAIB (Columbia Accident Investigation Board) detailed technical and management failures	CRS Summary of CAIB Report (NASA)	https://www.nasa.gov/wp-content/uploads/static/history/columbia/Troxell/Columbia%20Web%20Site/Documents/Congress/CRS%20Summary%20of%20CAIB%20Report.pdf
CAIB found NASA managers ignored engineer requests for damage assessment	CNN	https://ktvz.com/news/national-world/cnn-world/2024/04/13/5-ways-the-columbia-disaster-changed-spaceflight-forever/
NASA made major design changes post-Columbia, including crew cabin, suit, and foam ramp redesigns	CNN	https://ktvz.com/news/national-world/cnn-world/2024/04/13/5-ways-the-columbia-disaster-changed-spaceflight-forever/
Space shuttle program paused for 2.5 years after Columbia	CNN	https://ktvz.com/news/national-world/cnn-world/2024/04/13/5-ways-the-columbia-disaster-changed-spaceflight-forever/
Seven hills on Mars named after Columbia crew	Wikipedia: Kalpana Chawla	https://en.wikipedia.org/wiki/Kalpana_Chawla
University of Texas at Arlington built Kalpana Chawla memorial in 2010	Wikipedia: Kalpana Chawla	https://en.wikipedia.org/wiki/Kalpana_Chawla
Northrop Grumman named a cargo spacecraft S.S. Kalpana Chawla in 2020	Wikipedia: Kalpana Chawla	https://en.wikipedia.org/wiki/Kalpana_Chawla
Kalpana Chawla spent a total of 30 days, 14 hours, 54 minutes in space	Smithsonian Air & Space	https://airandspace.si.edu/stories/editorial/kalpana-chawla
No shuttle disasters in 20 years since Columbia (as of 2023)	CNN	https://ktvz.com/news/national-world/cnn-world/2024/04/13/5-ways-the-columbia-disaster-changed-spaceflight-forever/
India's Chandrayaan-1 landed flag on Moon Nov 15, 2008	ISRO	https://www.isro.gov.in/Chandrayaan1.html
US, USSR, Israel, China also landed on Moon (1969, 1976, 1990, 2013)	Wikipedia: List of missions to the Moon	https://en.wikipedia.org/wiki/List_of_missions_to_the_Moon
Asteroid 51826 named Kalpana Chawla	Wikipedia: Kalpana Chawla	https://en.wikipedia.org/wiki/Kalpana_Chawla