the magic of the space shuttle is just
its enormity it's huge and it flies up
and back and there will be no parallel
like that I think for a hundred years
I think the shuttle has been one of the
most marvelous vehicles that has ever
gone into space or done anything you can
imagine
the early space craft barely the size of
a desk for one or two astronauts now the
spacecraft is the size of an airliner
when you saw it you thought how can
something like this fly you've got all
these tile on the bottom of it and it's
like bricks if you want to look at it.

that way there was never a spacecraft like it as large as a DC9 airliner but

strong enough to withstand the vacuum of space big enough to carry huge satellites and built to be reused dozens of times and it had wings just like the imagined spaceship science fiction writers decide for their fantastic tales of adventure and the sophistication of that again compared to the earlier vehicles was was was difficult to get accustomed to particularly since we were making the transition from the era of
wires and switches and meters to digital computers when STS-1 came in it was a totally new vehicle a lot of work left to be done on her we still had to do hydraulic lines in the aft a few lines in the ab and well over thousands of tile to go do yet to put on the spacecraft the time frame as far as getting the overall integrated schedule it was really hard and difficult a lot of people pretty much three shifts a day round-the-clock seven days a week 365 days a year NASA built five shuttles to go into
space naming them after ships of exploration in previous generations

Columbia challenger discovery Atlantis and endeavour they were larger than any other spacecraft capable of carrying 25 tons in a 60-foot long cargo bay another difference with previous spacecraft shuttles could bring large payloads back and excite us a chance to see their experiments results firsthand the shuttles also carried more people on a single flight than ever before the shuttle flew crews of eight previous record was three shuttle astronauts also look different than the Flyers of
previous programs women and minorities

would be seen working in space throughout the shuttle program

astronauts ranging in age to John Glenn's 77 made their way into space on shuttles scientists have used the space shuttle as a platform to study our own planet life and material science our solar system and the universe itself perhaps its most famous accomplishment is NASA's Hubble Space Telescope which has dazzled us through more than 20 years with discoveries wrapped up in unimaginable beauty five teams of
astronauts worked on the observatory as it orbited earth giving life and capabilities far beyond what it lost with servicing the Hubble Space Telescope I think is one of the space shuttles finest accomplishments we've had several servicing missions they saved the Hubble Space Telescope on the very first mission if you will and it's just that we've extended the life of the Hubble Space Telescope for so many years and the things we've learned from the Hubble and others telescopes up there just astounding nowadays these
accomplishments did not come about

without struggles accidents struck the shuttle program twice each time

provoking new introspection in the agency Challenger broke up 73 seconds into flight On January 28th, 1986 Columbia returning to Earth following a successful scientific mission succumbed to the forces of reentry and was lost over Texas and Louisiana on February 1st each shuttle had seven astronauts on board we could have shut the program down after Challenger we could have shut the program down after Columbia we could
have stuck our heads in the sand and let
the future happen however it was going
to happen but we didn't we decided to
figure out what went wrong more
importantly than that figure out what we
did wrong fix it to the best of our
ability and keep keep the doors open for
our young people and keep that future
open
t-minus 10 seconds go for main engine
start
7 6 5 3 engines up and burning 3 2 1 and
liftoff of space shuttle Discovery
beginning America's new journey to the
moon Mars and Beyond and the vehicle has
cleared the tower astronauts flew

shuttles back into space following each

accident film missions and to honor the

legacy of exploration as the program

evolved Shuttle missions grew in

complexity ground teams and astronauts

like space walking using robotics and

capturing and deploying satellites the

next big change in the program came in

1995 when the shuttle fleet focused on a

new destination in orbit discovery

performed a flyby with the Russian space

station Mir then Atlantis docked with
the outpost a couple of months later to begin a string of shuttle visits bringing supplies and new astronauts to take turns living in space for months at a time far longer than any American had done before in 1998 NASA began a mission that would take more than 10 years and 36 shuttle flights to complete will push the astronauts space workers and the shuttles farther than before together with 15 other nations NASA began construction of the largest spacecraft in history the International Space Station
Bob Cabana commanded the first construction mission STS 88 in December 1998 to know what we were laying the groundwork for and have it go as smoothly as it did from start to finish that was a unique flight in a very rewarding opportunity astronauts born in Japan Canada the United Kingdom Australia and all over Europe carried their nations flags into space yeah we're all international astronauts it's a worldwide program it's the International Space Station and I think that's one of the great legacies of the
shuttle also is that

00:06:43,009 --> 00:06:50,009
that it allowed the world to come

00:06:48,089 --> 00:06:53,879
together and build our first great

00:06:50,009 --> 00:06:56,370
outpost in space astronauts moved into

00:06:53,879 --> 00:06:58,680
the International Space Station in 2000

00:06:56,370 --> 00:06:59,610
and spaceflight success was redefined

00:06:58,680 --> 00:07:02,490
again

00:06:59,610 --> 00:07:03,720
now of course sort of the pinnacle of an

00:07:02,490 --> 00:07:06,870
astronaut career is to go live on the

00:07:03,720 --> 00:07:10,169
space station working in crews of two

00:07:06,870 --> 00:07:12,449
three and six as the station grew the

00:07:10,168 --> 00:07:14,639
astronauts performed experiments learned

00:07:12,449 --> 00:07:16,500
how to refine station systems and

00:07:14,639 --> 00:07:17,220
acclimated themselves to the world of

00:07:16,500 --> 00:07:20,759
weightlessness
we had bedrooms we had laboratory we had windows take pictures out of it was a fully functioning laboratory and so it was just an awesome place to live it's you get used to zero-g and then you get used to sort of the daily operations what you have to do every day talk to the ground find some time to have your meals and and call your family and write your emails to your friends and I found it very easy to adapt to living in space and I really enjoyed it a lot crews also took on in orbit repairs including to
the shuttle itself and the international space station the last flight of the storage space shuttle program STS 135 will carry tons of equipment and supplies to the ISS leaving the orbiting laboratory well-stocked for another decade of research in orbit four astronauts will perform the mission working with the space station six residents to unload the supplies during much of the 12-day mission all four our veteran fliers commanded by Chris Ferguson Doug Hurley will be the pilot and sadly Magnus and Rex Walheim
are the mission specialists we kept the

scope of the mission fairly compact you

know it's it's an mplm resupply

logistics mission

there's one e VA but that spacewalk is

being done by the space station crew so

the scope is a little bit smaller as a

result because this is the final shuttle

mission its patch would carry extra

meaning the wife of mission specialist

Rex Walheim came up with a design well

we wanted to make it a celebration want

to make it a happy patch that really

encompasses the kind of history of the
space shuttle program so in some

00:08:56,559 --> 00:09:00,939
respects it mirrors a little bit the STS

00:08:59,230 --> 00:09:03,250
one patch with the full shuttle on there

00:09:00,940 --> 00:09:06,040
and we wanted to also honor the whole

00:09:03,250 --> 00:09:07,600
NASA contractor team the whole team that

00:09:06,039 --> 00:09:09,969
has made the Space Shuttle possible we

00:09:07,600 --> 00:09:11,320
did that by putting a portion of the of

00:09:09,970 --> 00:09:13,660
the NASA emblem in the middle with the

00:09:11,320 --> 00:09:14,949
swoosh on there and then we also want to

00:09:13,659 --> 00:09:18,669
signify that it was the last mission we

00:09:14,948 --> 00:09:20,859
did that with the Omega after 134

00:09:18,669 --> 00:09:22,750
missions the shuttle program has pushed

00:09:20,860 --> 00:09:25,720
the boundaries of what was possible for

00:09:22,750 --> 00:09:28,028
people to accomplish in space the space

00:09:25,720 --> 00:09:30,389
program since its early days it has been
really something to point out as a piece of history of American history and Space Shuttle for the last 30 years has been the way we get American astronauts onto orbit and international astronauts with us so be remembered as this part of American spaceflight history to have a vehicle like the shuttle that launches a rocket lands as a heavy glider and does all the different kind of functions on orbit that it has over the years I think it's gonna stand in the annals of history is a very unique versatile kind of a
one-of-a-kind vehicle the Hubble Space Telescope the Space Station means just tremendous accomplishments you know a winged vehicle that is able to come back to a runway developed in the 70s I mean it's just a tremendous technological feat even now I don't think we're gonna see a vehicle like it in the near future and I I'm just proud that I was one very small part of it I think people are gonna look back on the Space Shuttle and think it was one of the most incredible vehicles ever built by mankind it allowed us to fly into space in a fairly
routine

it will be a long time before we see

another vehicle nearly as capable of

dysplasia

it'll be remembered for I think it's

just it's pioneering in aerospace and

just the magnitude of the program and

the fact that it served the world for

thirty years and built International

Space Station will be what really would

everybody remembers