# "Force 5" Script (copyright Rice University)

| Script | Description of scene |
|---|---|
| *Loading*<br>*sound*<br>*video*<br>*animation*<br>*Sequence initiation* | The dome darkens to complete black. A live announcer makes a warning.<br><br>There are a few blank seconds in the darkness, pregnant with anticipation.<br><br>Suddenly, concentric glowing neon lines of color appear in the focal point of the dome. These lines streak past, forming the outlines of some sort of great electronic corridor through which we are flying forward. Exciting music pulses loudly. The main titles begin appearing. Each title streaks onto the screen superimposed over the twisting, turning journey through the corridor. The corridor, called The Network, is composed of lights, metallic details, and strange, glowing, dronelike "bits" that are arranged in formations. Every now and then we pass screens of static.<br><br>The view catches up to a floating platform which keeps pace with us. The music fades as we slow to a drift at a seemingly random juncture of The Network. A flickering holographic image of a female host appears upon the platform. She is dressed in a sleek, modern, professional fashion. Standing atop the hi-tech platform, she floats towards us. Her image solidifies into a steady realistic appearance as she begins speaking. |
| `The same forces that bring about a cool breeze in spring or warm sunshine on the beach can sometimes converge into events of great scope and destructive power.` | Several bits fly away from the sides of the Network into formations around the dome. Once these bits are parked in the air in four point rectangle formations, a video screen lights up between them. Three video-screens are formed. |
| `Energy in our world constantly flows through natural cycles where heat, pressure, and radiation bring` | The screens display videos of tranquil weather conditions, sunlit beaches, and peaceful landscapes. |

| Script | Description of scene<br>**BOLD** is lettering that appears onscreen |
|---|---|
| gradual changes in the environment. These changes periodically transform into catastrophic events. For the most powerful, we reserve the title, Force Five. | Each screen image breaks up in confusion and then displays a literal graphic of force five. The graphics are: A countdown up to five, a waveform that increases to a frenetic level, and a revolving radarscope with a huge blip.<br><br>The bits extinguish their screens. Four of them drift into a new rectangle position, and ignite a new viewscreen between them. The others move way and disappear into the Network. |
| *Loading*<br>*Sequence initiating*<br>*Section 1*<br>Oceans cover 75% of our planet. They capture much of the solar energy **reaching Earth.** Some of the energy returns to the air and out into space as heat. Most of the energy is absorbed, warming the waters and driving ocean currents. Ocean currents swirl around the Earth, many of them thousands of kilometers long. These currents have an enormous effect on the world's weather systems. | The new screen moves to fill the entire focal area of the dome. An electronic full motion 3-D graphic appears that illustrates the oceans of the Earth. Solar waves appear and warm the oceans. The warmth appears as an exaggerated glow in the tropical regions.<br><br>The bits extinguish the screen and dissipate as other bits float up forming a new screen. |
| Sometimes an ocean becomes too warm. The orderly return of heat into the air is interrupted. Instead, water evaporates, forming clouds. Normally clouds release their pent up energy as rain. This is not the case off the coast of Africa in the warm Atlantic of late summer. Here the ocean has enough heat to create air currents that keep clouds aloft. More and more water is fed into the system over time. The air begins to spin in a circular motion creating winds through the entire cloud structure. | This screen shows a stylized revolving diagram of ocean water with clouds forming over it.<br><br>A map showing the Atlantic area is shown. We close in on a mass of clouds. |

| Script | Description of scene<br>**BOLD** is lettering that appears onscreen |
|---|---|
| | The clouds form a circling pattern… |
| As the weather system moves westward, warmer waters feed the growing storm more and more energy. If the forces increase to a level of Force Five, the storm evolves into one of the largest forms of extreme weather, the hurricane. | …and then form into a hurricane pattern that pulsates with an ominous pulsing glow. The music plays subtly threatening chords. |
| Hurricanes stretch from 200 to 300 miles in diameter and can last for up to three weeks. They are composed of a huge spiral vortex of clouds, winds, and rain. A hurricane contains an eye of completely calm weather in its center. | The stylized onscreen hurricane pattern slowly rotates to show off the structure and eye. |
| These angry giants threaten island and coastal populations with torrential rains and flooding, and can develop in both hemispheres of the planet. | |
| One of these tropical storms was the cause of the deadliest natural disaster in American history. | The screen appears to float back a little as many little rectangular shapes swarm up and begin revolving around the dome. These shapes are the Galveston "before" photos. |
| In 1900, Galveston, Texas was a prosperous city, destined to become the New York City of the Gulf of Mexico. With its bustling port importing goods to the entire Southwest, it was the financial center of the State of Texas. Here, approximately 40,000 people enjoyed a livelihood fueled by a booming economy. | Every few seconds one of them flies close enough to fill up the dome's focal point and slows down to allow a good view. They illustrate the ornate homes and architecture of the bustling city. Old time city sound effects can be heard. |
| However, on the night of September 8th, 1900, the island fell prey to the force | The photos begin to back off as they continue revolving, and some new bits |

| Script | Description of scene<br>**BOLD** is lettering that appears onscreen |
|---|---|
| of a violent hurricane. In a few hours, the Gulf swelled and flooded the entire city. Howling winds exceeding 100 miles an hour. Most people perished as houses collaspsed into splinters at the incredible force of torrential waters and wind.<br><br>Morning, the day after, revealed the complete destruction of Galveston and the dead bodies of at least 7,000 citizens.<br><br>Today, weather tracking satellites, orbiting astronauts, and reconnaissance aircraft allow us to monitor the formation and path of Hurricanes and prevent such a disaster from ever surprising a population again.<br><br>The United States is prone to another unique Force 5 phenomenon due to the effects of its geography on certain energy cycles. | come up and form three new viewing screens. The screens display sepia toned footage of a coast being ravaged by a hurricane. The music cue is one of dread.<br><br>The bits extinguish the three screens and lose their formation as they fly away. The wide circular rush of photos begins to constrict again. Some of the photos once again slow down and get close. They now illustrate the complete destruction of the city of Galveston. The photos get faster and further and many bits fly into position all around the dome. The photos fade off as their circle increase in size and distance from us. The bits have arranged themselves to form a symmetrical net across the entire dome. When they ignite a composite viewscreen, it covers the full dome and creates a full dome view.<br><br>We are in a full dome view of space above the Earth. A weather satellite floats by slowly. We can hear faint radio transmissions. The camera begins to plunge down to the Earth towards a hurricane cloud formation in the Gulf. The camera dives into the cloud through blurs of darkness and lightening. We finally come to a sudden stop over the raging ocean in the midst of a force five hurricane. We hold position here in the din of roaring sound effects.<br><br>Suddenly the full dome screen is extinguished and all the bits dissipate. We are once again in the Network. The hostess floats closer into the focal point of the dome on her platform. Bits form a screen which shows various satellites and aircraft. They dissipate. |

| Script | Description of scene<br>**BOLD** is lettering that appears onscreen |
|---|---|
| *Loading*<br>*Sequence initiating*<br>*Section 2*<br>Between the Rocky and the Appalachian Mountains, from Iowa to the Gulf of Mexico, thunderstorms develop. These turbulent giants are created when warm humid air from the Gulf collides with cool dry air from the Rockies. Thunderstorms themselves don't constitute a Force Five event. | Four bits fly in and form a new viewscreen which shows an electronic map of world and then North America. The outline of the states appears as the map rotates. The Plains regions are highlighted and lift up out of the map.<br><br>The map reclines back and stylized storm clouds are shown forming. |
| As a thunderstorm grows, the condensed moisture forms a thunderhead cloud that can rise 50,000 feet into the sky. Within the thunderhead, a region of spinning air forms and stretches vertically. When this area of rotation lowers below the base of the storm, it becomes a wall cloud. | Other bits form two more videoscreens on each side of the currently featured one. They begin showing actual footage of the cloud formations. The central screen illustrates the concepts of storm formation in a 3D graphic diagram.<br><br>A wall cloud is illustrated graphically. |
| From this wall cloud that nature's most violent and unpredictable storm descends to touch the ground… the tornado. | The central screen moves closer as the graphics depict the formation of a funnel cloud and tornado. |
| These twisting vortexes of air spin around at great speeds as they lift debris from the ground, leaving a trail of destruction. Their paths are erratic. They can often lift up and touch down unpredictably. Their funnel clouds can be seen for miles away.<br><br>The warning signs of an impending tornado include a dark greenish sky and a | The screen moves back to reveal that the other two screens are now showing still pictures of various weak tornadoes.<br><br>The screens show CG depictions of a dark greenish sky, a wall cloud, and rain and hail blowing nearly sideways. |

| Script | Description of scene<br>**BOLD** is lettering that appears onscreen |
|---|---|
| thunderstorm with a wall cloud. Sometimes, a sudden downpour of rain and even hail precedes a tornado. Warnings come only minutes before the twister, giving scarcely enough time for people to race into storm cellars.<br><br>A "Force Five" scale tornado can last more than 1 hour with wind speeds greater than 250 miles per hour. These monstrous vortexes can lift automobiles into the air and rip homes apart. Flying debris of wood and glass become lethal missiles.<br><br>One of these terrifying types struck on May 3, 1999 in Oklahoma City. Doppler radar recorded a 318 mile per hour wind, the fastest ever measured on the surface of the planet. With a force equal to the shock-front of a nuclear explosion, this F-5 tornado left a trough of destruction through southwestern portion of the city.<br><br>By using Doppler radar and orbiting satellites such as GOES, we can monitor weather conditions, and predict the possibility of a tornado forming. Using this information, we can extend the warning time for those in a tornado's path and save human lives. | Suddenly all three screens begin showing still photos of the wide black force 5 style tornadoes. (these serve as an inferior teaser versions of what will come in the following full dome sequence)<br><br>Onscreen:<br>**250 MPH wind speed**<br><br>Onscreen:<br>**Oklahoma City, May 3, 1999**<br>Pictures of the destruction of the town by a force 5 tornado are shown. The music has turned scary. Numbers appear:<br>**7000 homes damaged**<br>**318 MPH WIND**<br>**42 fatalities, $1.2 billion estimated damage**<br>**FORCE = Shock front of a nuclear explosion**<br>**675 injuries**<br><br>The three monitors display Doppler radar, satellite models, and a tornado warning.<br><br>The bits extinguish the three monitors and dissipate into a new full dome pattern of bits. All the bits suddenly activate a full dome view.<br><br>The full dome view reveals a rolling prairie landscape underneath a sky darkening from a thunderstorm cloud. A picket fence runs by on one side, |

| Script | Description of scene<br>**BOLD** is lettering that appears onscreen |
|---|---|
| | and a portion of a farmhouse is visible behind. Hail comes from the darkening cloud as it begins to spin. A funnel cloud forms in the distance and darkens into the wide shape of a force 5 tornado. This monster approaches with a roar that shakes the entire theatre. The picket fence flies off post by post as the storm approaches. Go to black |
| | The bits extinguish the full dome image and dissipate. As the narrator talks, we follow the platform around a bend in the Network. |
| Some powerful events originating in Space, easily dwarf the phenomena we observe on the Earth surface. Our Sun is home to eruptions of energy so tremendous that they affect us from across millions of miles of space. | |
| *Loading*<br>*Sequence initiating*<br>*Section 3* | |
| The sun is composed of a spinning spherical mass of extremely hot gasses fueled by nuclear fusion reactions. Energy from the core of the sun travels outward to its atmosphere where it escapes as radiation and rising columns of gas. | Eight bits form a holographic screen which displays a 3D electronic rotating cutaway model of the sun.<br><br>The holographic diagram of the sun illustrates the radiation of energy to the turbulent surface littered with flares and sunspots. |
| The transfer of energy to the boiling surface distorts the lines of the magnetic field around the Sun. This distortion of the field stores energy and builds in intensity. When released, a | |

| Script | Description of scene<br>**BOLD** is lettering that appears onscreen |
|---|---|
| solar flare occurs.<br><br>A solar flare produces dangerous quantities of energetic particles and high-energy light. Waves of deadly x-rays, ultraviolet light, and gamma ray radiation shoot out toward Earth at the speed of light.<br><br>Luckily, the Earth's atmosphere and magnetic field deflect and absorb most of the harmful rays, protecting life on Earth. The magnetic field is high enough to even protect astronauts in orbit.<br><br>The solar Flare is often accompanied by a coronal mass ejection, spewing out over a million tons of solar particles toward Earth. The coronal mass ejection or CME, causes geomagnetic storms in the Atmosphere<br><br>The effect of these storms are seen in the form of the beautiful, twisting auroral lights.<br><br>This massive disruption by the storms, creates ionospheric disturbances that affect communications and disable power grids, **sometimes** leading to city-wide blackouts. Energized particles trapped in the field can even disable the electronics of orbiting satellites.<br><br>These solar events occur on a magnitude of violent force and energy that equals the | A solar flare shoots out from the side of the sun.<br><br>The holographic monitor disassembles and the bits form a flat viewscreen.<br><br>The viewscreen show a colorful animation of waves of radiation hitting the earth and its magnetic field.<br><br>An animation of a CME is shown emerging from a flare.<br><br>The viewscreens illustrate the path of CME particles into the magnetic field of Earth.<br><br>The formation of auroral glows are depicted on the viewscreen.<br><br>The bits break up and form three new screens. These screens illustrate the magnetic field distorting, blackouts on earth, and satellites in a wave of particles.<br><br>Revolving models of the satellites appear.<br><br>The viewscreens dissipate, and the |

| Script | Description of scene<br>**BOLD** is lettering that appears onscreen |
|---|---|
| power of a billion hydrogen bombs… | hostess flies in closer. The music builds in tension.<br><br>Bits once again form a full dome image. |
| Our SOHO and TRACE spacecraft can warn us dangerous flares, and the IMAGE spacecraft monitors the particles trapped in the magnetic field. | The full dome image depicts the vast star filled vista of space with the earth and the sun featured. We see the IMAGE spacecraft floatiing above the Earth.<br><br>The sun's turbulent surface erupts in a massive CME that sends waves (emphasized with color for dramatic effect) of force to the Earth. Sound effects are roaring (for dramatic effect). |
| A CME reaches Earth just a few days after the flare.<br><br>Invisible to the naked eye, the blast hammers our planet's magnetic cocoon. The field shakes violently and is sometimes forced inward, exposing satellites to harm. | We zoom along the wave back to the Earth and watch as the waves hit the magnetic shield (glowing for illustrative purposes) and push it out of shape.<br><br>We see auroral lights glowing in the aftermath.<br>The bits dissolve the full screen view and dissipate. |
| The forces of nature make our lives possible and our world interesting. They trap energy all around us: in warm ocean currents, in moving air mases, and in the twisting magnetic fields of the sun. We have discovered that the most extreme of natural catastrophes are but periodic peaks in the ever-flowing path of natural forces.<br><br>Over years of observation and experimentation, we have | For the first time, we are floating backwards through the Network. |

| Script | Description of scene<br>**BOLD** is lettering that appears onscreen |
|---|---|
| developed ways of viewing, measuring and sometimes even predicting nature's next move.<br><br>Soon we will leave Earth's cradle to explore our Solar System. Although we leave behind the tornadoes and hurricanes of Earth's Atmosphere, the Sun's Force 5 eruptions still threaten us. With skill and a bit of luck, our science, technology, and vigilance will keep us ready whereever we journey, when nature once again goes Force Five. | Watch a potential lunar lander float above the Moon's surface.<br><br>Credits roll with space sounds.<br><br>. |