LIGHTHOUSE *for the* BLIND
ST. LOUIS, MO.

Space Camp is an exciting adventure yet is also an intense and action packed week. Space Camp (SCIVIS) is quite different from a recreational "camp". Campers will occasionally spend hours in lectures and training for missions and other adventures. Days are long and kids need to be able to keep focused for long periods of time. Please see the "Space Camp Programs" list of activities that campers will participate in to consider if your child would be qualified.

The travel demands required of students attending Space Camp involve negotiating a variety of environments. They must travel within the very large Space Camp campus as well as the dorm facility and remain oriented on occasional community excursions. Campers must be able to walk for long distances and long periods of time. While campers typically travel as a group with counselors, chaperones and other students present, each camper is encouraged to be as independent as possible in these settings. If your child uses a cane for any kind of travel, they will be required to travel with their cane at all times while attending Space Camp.

Your child will need to have the necessary independent organization, personal hygiene and social skills to be away from home for one week. They will need enough personal initiative to attempt new challenges and willingness to interact positively with blind and visually impaired peers. There may also be pre-camp activities that require participation.

To be able to attend Space Camp, a camper must be able to complete all tasks listed below **INDEPENDENTLY.** Campers should be able to wake up and be prepared to leave the dorm within 45 minutes. **If your child is not independent in these skills, you may want to begin practicing them so he/she will be independent at the time of Space Camp (September). If your child attends camp and does not possess these skills, it may jeopardize their opportunity to attend Space Camp in the following years.**

Independent Skills Required to Attend Space Camp:

Clothing

Dress Self: button/zippers
Tie/Velcro shoes
Pack suitcase or assist in packing
Be familiar with own clothes (identification)
Independent use of a lock

Personal Management

Wash & style own hair
Independent showering & hygiene (deodorant)
Independent toileting
Brush teeth
Eye care (prosthetics)
Use of personal supplies (female protection)
Knowledge of medications

Independent Thinking
Choose appropriate clothing (weather, activities)
Pack day bag for outing

Orientation & Mobility
Sighted Guide
Independent Cane Skills
Soliciting help when appropriate

Sleepovers (may need to climb ladder to bunk beds)
Practice packing for overnight
Go to sleep independently

Money Management
Storage of money
Carry a wallet with $ and ID

Social Skills
Can meet new friends & maintain friendships
Age appropriate behavior when away from parents
Have some interest in space & academics

Eating
Appropriate use of utensils (knife for cutting)
General social etiquette
Can open packages (condiments, milk cartons)

SPACE CAMP PROGRAMS *- Please review each program to determine if your child will be qualified to participate.*

SPACE CAMP (Grades 4-6)

- Must be able to independently dress self and prepare for a full day of activities usually beginning at 7:00 am and ending at 9:30pm
- Must be able to walk 5-10,000 steps per day
- Must listen to 10 hours of history
- Must perform 8 hours of experiments with a team
- Must construct a rocket and launch it
- Must actively participate in astronaut simulators
- Must attend 3 hours of mission training
- Must be able to read (in large print or Braille) scripts
- Must participate in two 2-hour space missions
- Will view I-MAX or 3-D movies

SPACE ACADEMY (Grades 7-9)

- Must be able to independently dress self and prepare for a full day of activities usually beginning at 7:00 am and ending at 9:30pm
- Must be able to walk 5-10,000 steps per day
- Must listen to 10 hours of history
- Must perform 8 hours of experiments with a team
- Must be able to read (in large print or Braille) scripts
- Must participate in two 2-hour space missions
- Must participate in 14 hours of robotics
- Will view I-MAX or 3-D movies
- Must actively participate in teamwork activities
- Must actively participate in Jet Fighter Simulations
- Must participate in Land Survival activities

ADVANCED SPACE ACADEMY (Grades 10-12)

- Must be able to independently dress self and prepare for a full day of activities usually beginning at 7:00 am and ending at 10:00pm
- Must be able to walk 5-10,000 steps per day
- Must actively participate in Space Suit Theory and Design
- Must actively participate in Space Physiology
- Will participate in Scuba Space Walk Training (*certain medical restrictions may prohibit the trainee from Scuba diving.)
- Must actively participate in Aeronautic Design
- Must actively participate in Jet Aircraft Simulations
- Must actively participate in Orbital Mechanics

ROBOTICS CAMP (GRADES 4-6)

- Must be able to independently dress self and prepare for a full day of activities usually beginning at 7:00 am and ending at 10:00pm
- Must be able to walk 5-10,000 steps per day
- Learn engineering, programming and wireless control concepts using LEGO MINDSTORMS EV3 technology
- Put these concepts to the test as you design, build, program and test land-based robots to compete on the Challenge Table
- Use series circuits to build your own LED flashlight that you can take home
- Create and pilot underwater robots using the SeaPerch ROV system
- Train in the art of flying Unmanned Aerial Systems using RealFlight drone simulations

ROBOTICS ACADEMY (GRADES 7-9)

- Must be able to independently dress self and prepare for a full day of activities usually beginning at 7:00 am and ending at 10:00pm
- Must be able to walk 5-10,000 steps per day
- Program robots to interact with the world using a variety of sensors and motors
- Choose from various advanced lessons in building robotic attachments, programming with sensors and data functions, or using both tactile and hands-free human interface devices

ROBOTICS ACADEMY (CONTINUED)

- Create your own customized LED cannon using series or parallel circuits that you can take home
- Use the binary number system and logic functions to understand how machines "think."
- Design, build and pilot underwater robots using the SeaPerch ROV system
- Train in cutting edge, custom-designed Unmanned Aerial Systems simulations

MACH 1 AVIATION CHALLENGE (Grades 4-6)

- Must be able to independently dress self and prepare for a full day of activities usually beginning at 7:00 am and ending at 10:00pm
- Must be able to walk 5-10,000 steps per day
- Must listen to 10 hours of history
- Will view I-MAX or 3-D movies
- Must actively participate in Flight Simulators:
- Must actively participate in Take-off and landing
- Must actively participate Navigational training
- Must actively participate in Teamwork
- Must actively participate in Air to ground training
- Must actively participate in Aviation principles:
- Must actively participate in Forces of Flight
- Must actively participate in Aviation Weather
- Must actively participate in Control Surfaces
- Must actively participate in Propulsion
- Must actively participate in water survival skills

MACH 2 AVIATION CHALLENGE (Grades 7-9)

- Must be able to independently dress self and prepare for a full day of activities usually beginning at 7:00 am and ending at 10:00pm
- Must be able to walk 5-10,000 steps per day
- Must listen to 10 hours of history
- Will view I-MAX or 3-D movies
- Must actively participate in Flight Simulators
- Must actively participate in Low Ropes Course
- Must actively participate in Lake Activities
- Must actively participate in Shelter Building
- Must actively participate in Fire Building
- Must actively participate in Seal Op's
- Must actively participate in Escape and Evasion

MACH 3 AVIATION CHALLENGE (Grades 10-12)

- Must be able to independently dress self and prepare for a full day of activities usually beginning at 7:00 am and ending at 10:00pm
- Must be able to walk 5-10,000 steps per day
- Must listen to 10 hours of history
- Will view I-MAX or 3-D movies
- Must actively participate in Flight Simulators
- Must attend Classroom Lectures on Fire building, Finding Food and Water and Shelter Building
- Must actively participate in Lower Ropes Course
- Must actively participate in Tower and Repel
- Must actively participate in Tower and Zip Line
- Must actively participate in Pamper Pole
- Must actively participate in Seal Op's
- Must actively participate in Escape and Evasion
- Must actively participate in Parachute Drop
- Must actively participate in Helo Dunker

LIGHTHOUSE *for the* BLIND
ST. LOUIS, MO.

IMPORTANT

PROCESS FOR REGISTRATION

1. Fill out the Lighthouse Application for a scholarship to Space Camp.
2. Include **the email address** that you want the registration invitation sent to
3. Attach a current eye report to the application
4. When complete, mail with a $50 NON-REFUNDABLE registration fee to :
   Lighthouse for the Blind-St. Louis
   Attn: Angie Yorke ***OR*** *Email to:* ***ayorke@lhbindustries.com***
   10440 Trenton Avenue
   Saint Louis, Missouri 63132

5. The Lighthouse application and registration fee MUST BE submitted to the Lighthouse by August 20, 2019.
6. **After completed applications are received by the Lighthouse you will receive an invitation by email to complete the online registration. You will complete ALL information at this time and then registration is complete**.
7. If you do not receive an invitation after completing the paperwork, contact Angie Yorke ASAP. (There is a possibility applications get lost in mail, etc).
8. You must complete both a Lighthouse for the Blind Scholarship Application as well as ALL online registration required by Space Camp or scholarships will not be granted.
9. See LHB website for complete details.

LIGHTHOUSE FOR THE BLIND
SPACE CAMP SCHOLARSHIP APPLICATION

SEPTEMBER 28- OCTOBER 4, 2019

APPLICATION DEADLINE: AUGUST 20, 2019

Please note: All kids must be age 9-18 years of age to be able to participate.

*Students must be in the 4th grade or older to attend camp.

Personal Information

Please Print Clearly

Name _____

Address _____ City _____ State _____ Zip _____

Phone _____

Birth Date _____ Age at time of camp _____ Sex: ☐M ☐ F

Grade at time of camp _____ School District _____

Email to receive invitation to register_____

Parent/Guardian Information:

Name _____

Address _____ City _____ State ____Zip _____

Day Phone _____ Evening Phone _____

Email to receive invitation to register_____

Emergency Contact Information:

Emergency contact: _____ Relationship _____

Day Phone _____ Evening Phone _____

Visual Classification *(Please check one. If you are note sure, please estimate)* :

- ☐ **B1:** No light perception in either eye up to light perception, but inability to recognize the shape of a hand at any distance or in any direction.
- ☐ **B2:** From ability to recognize the shape of a hand up to visual acuity of 20/600 and/or a visual field of less than 5 degrees in the best eye with the best practical eye correction.
- ☐ **B3:** From visual acuity above 20/600 and up to visual acuity of 20/200 and/or a visual field of less than 20 degrees and more than 5 degrees in the best eye with the best practical eye correction.
- ☐ **B4:** From visual acuity above 20/200 and up to visual acuity of 20/70 and a visual field larger than 20 degrees in the best eye with the best practical eye correction.

Eye Condition: _____

Please attach to this application any information on eye condition that chaperones need to know to assist your child and provide a safe environment.

There are certain rides (simulators) that may cause harm to people with certain eye conditions. Please see the attachment and list any concerns below. Does your child have an eye condition we should be aware of? : ☐ Yes ☐ No

If "yes" please explain: _____

_____

_____

What Space Camp Program do you wish to attend? (See page 3 and 4 for program info. You must choose a program to participate in).

_____

Any known food allergies we should be aware: ☐ Yes ☐ No

If yes, please explain: _____

Any know allergies to plants, bees, outdoors, etc? If yes, please explain and let us know if the participant will require any assistance: _____

_____

Is the participant taking any medications we should be aware: ☐ Yes ☐ No

If yes, please explain and let us know if the participant will require any assistance: _____

_____

Are there any health or injury issues we should be aware: ☐ Yes ☐ No

If yes, please explain: _____

Has the participant ever spent the night away from home before? ☐ Yes ☐ No

T-Shirt Size : Youth Small ☐ Youth Medium ☐ Youth Large ☐ OR

Adult Small ☐ Adult Medium ☐ Adult Large ☐ Adult XL ☐

Travel Plans: **All participants must have their own transportation to and from Lighthouse for the Blind. Once participants arrive at Lighthouse for the Blind, transportation will be provided to Space Camp by chartered bus.**

- Details on arrival and departure time will be mailed to you in the future. We typically meet at the Lighthouse at 5:00 a.m. or 5:30 a.m. for departure.

Participants must:

1. Display behaviors that allow them to function in a group setting that does not affect other group members Must not display defiant behavior (this includes refusing to stand in a line, refusing to participate in a variety of activities, refusing to abide by the bed time) If a child has disciplinary problems at camp they will not be able to apply again the following year.

2. Not possess a medical problem that requires a nurse for constant supervision.

3. **<u>Parents must</u> disclose ALL necessary information that will allow us to provide a safe environment for the week. This includes ANY issues that may arise behaviorally or medically. Please attach this information to the application.**

4. Campers may jeopardize their opportunity to attend in following years if they display the following:
   - Defiant or conduct disorders
   - Have mobility limitations that prohibit them from ambulating 1/2 mile or inability to participate in the activities.
   - Does not have the independent and organizational skills required for participation (see list for more details)

Release

This application must be completed in FULL. Applications and ESSAYS must be completed in either pen or typed. Essays must be in the applicant's own words.

General Liability Waiver:

I, _____, being the parent/legal guardian of _____, do hereby consent to his/her participation in voluntary functions sponsored and/or organized by the Lighthouse for the Blind – St. Louis. I understand that he/she is responsible for his/her behavior. I do hereby waive and release, the Lighthouse for the Blind – St. Louis, their service partners (including schools) and/or sponsors of any project, event, or function, from all claims and liabilities, of any kind whatsoever, arising from, whether directly or indirectly, my child/ward's participation in Lighthouse for the Blind – St. Louis, and or functions.

Transportation Liability Waiver:

I do hereby consent to The Lighthouse for the Blind – St. Louis providing transportation (in commercially procured and private vehicles) for my child/ward if necessary. I do hereby waive and release the Lighthouse for the Blind – St. Louis, their service partners and/or sponsors of any project or function, from all claims and liabilities, of any kind whatsoever,
arising from, whether directly or indirectly, my child/ward's involvement in transportation services provided by the Lighthouse for the Blind – St. Louis.

Release to Seek Medical Treatment*

In the event of a medical emergency, I do hereby consent to the Lighthouse for the Blind – St. Louis releasing my child/ward to the nearest, most appropriate medical professional available. I understand that the Lighthouse for the Blind – St. Louis will notify me of such an event immediately after they have sought proper medical treatment for my child/ward at the following phone number: _____.

*If your child/ward has a chronic or recurring medical condition, for which emergency treatment is not necessary, please address your child's/ward's needs in the appropriate area of this application.

Photo Release

I hereby grant permission to use my child's/ward's likeness in a photograph in any Lighthouse for the Blind publications, including website entries, without payment or any other compensation. I understand and agree that these materials will become property of the Lighthouse for the Blind – St. Louis and will not be returned.

By signing below, I indicate that I understand and agree to the items above.

_____ _____

Participant's Signature **Parent's/Guardian's Signature (if under age 18)**

Proposed Simulators for use in the US Space and Rocket Center Program for Visually Impaired Children

1/6 Microgravity Chair

This chair is designed to simulate the moons gravitational pool. The chair can move both vertically and horizontally. Vertical height is controlled by a counselor. Protective gear includes helmet and seatbelt.

The movement of this chair is extremely gentle. This presents no greater risk for a visually impaired child, regardless of the cause of visual impairment, than it would for a sighted child.

5 Degrees of Freedom Chair: This chair is designed to simulate movement in a frictionless environment. Movement in 5 different directions is possible, including: forward/backward, side-to-side, roll, pitch and yaw. Protective gear includes helmet and safety straps. Excursion of the chair is in great part controlled by the counselor.

Movement this chair is gentle with no rapid acceleration or deceleration. This simulator incurs no greater risk for a visually impaired child than for a sighted child.

Manned Maneuvering Unit-1 G Trainer (MMU): This unit simulates a manned maneuvering unit operating in the micro-gravity of space. Similar to the 5 Degrees of Freedom Chair, motions include forward/backward, side-to-side, roll, pitch and yaw. Although inversion was previously an option, it is no longer allowed. Protective gear include helmet and safety straps.

Use of this simulator involves slow positional changes with no inversion or rapid acceleration changes. Movement in large part is controlled by a counselor. This simulator incurs no greater risk for a visually impaired child than for a sighted child.

Multi-Axis Trainer (MAT): This unit simulates a tumble spin experience during reentry into the earth's atmosphere. The MAT does not spin more than twice in the same direction, but does produce inversion. There are rapid accelerations and decelerations. Theoretically there is no shifting of the inner ear fluid and therefore no vertigo with resultant nausea or vomiting is produced. Protective gear includes hand and foot restraints as well as a 5-point harness.

This trainer produces rapid but mild changes in direction. Dizziness and nausea may result despite an intact vestibular or inner ear system. There is minimal head restraint and therefore precaution must be exercised in children with poor head control. Otherwise, there is no increased risk for the visually impaired child than for a sighted. Theoretically, vestibular disturbance is inhibited by an intact visual system. Nausea and disorientation may persist in children with extremely limited vision.

Space Shot: This unit simulates the rapid acceleration of a rocket escaping earth's gravity. There is rapid acceleration and a slow deceleration. Safety precautions include a seat belt and a protective padded bar which fits over the shoulders. At the top of the ride as acceleration ends, campers experience a hard jolt as falling down into a padded seat.

This unit poses no greater safety risk for visually impaired children then it does for sighted children. The rapid acceleration and the jolt against the seat bottom may be more problematic in children with muscular-skeletal disease, in particular, poor muscle tone and head control.

Centrifuge: The Centrifuge is a simulator, which produces a rapid circular motion. This ride was unavailable. However, the instructional manual states that a 3g force (between 150lbs - 450lbs) is generated over a 15-minute ride. The subject will experience chest pressure. Breathing may be mildly impaired. As long as the head is still, dizziness or vertigo are usually not encountered. However, with head movement (i.e. lifting the head up) prolonged nausea and vomiting may ensue.

Although the simulator itself appears to pose no increased risk for a visually impaired child as compared with a sighted child, prolonged vomiting following the ride can cause unacceptable increase intraocular pressure. This would pose a risk of vision loss to children with end stage glaucoma. In addition, children with proliferative diabetic retinopathy or other retinal vascular anomalies would be at increased risk for intraocular hemorrhage. Vitreous hemorrhage may require a surgical procedure. Therefore, children with proliferative diabetic retinopathy, and stage glaucoma, or other retinal vascular anomalies may be at risk for vision loss from prolonged vomiting after riding this simulator.

Other considerations: Specific eye diseases

Retinal detachment

The question of risk as been raised specifically for children with a history of retinal detachment repair. Following successful retinal reattachment, the retina is stable or more stable than prior to surgical repair. It is unlikely that any of the above simulators pose a significant risk of retinal detachment. One exception is children with intraocular silicone oil or intraocular gas. In these children, positioning is essential for successful retinal reattachment. These children should not be inverted and in many cases should not lie on their backs. It is unlikely that these children would be participating in space camp activities since this would likely occur in the immediate post-operative period.

Although several eye conditions predispose retinal detachment, the simulators discussed above should not significantly increase the risk of detachment. A greater risk is associated with extracurricular activities (i.e. contact sports).

Glaucoma

Risks for children with glaucoma include prolonged inversion and persistent vomiting. Both of these conditions increase intraocular pressure. This should only be a problem in children with end stage glaucoma.

Eye Trauma

The risk of vision loss from eye trauma is of common concern in visually impaired. Protective eye wear would be appropriate for those children who have eye surgery (i.e. glasses with plastic safety lenses). To decrease the risk of trauma it would be helpful to provide counselors with a brief description of each child's visual dysfunction. The significance of general classes of visual impairment could be included in counselor training sessions. Examples include children with retinitis pigmentosa who function quite well under bright illumination but who rapidly become visually impaired with decreased environmental lighting. In these children, limited peripheral vision may preclude them from seeing common objects at floor level (i.e. trash cans). Children with extreme light sensitivity (i.e, achromotopsia) function quite well with decreased room illumination. However, in bright sunlight vision impairment increases dramatically and therefore mobility becomes more difficult, particularly in unfamiliar environments.