Attachment A

Supt’s Memo No. 215-19a

September 6, 2019

# Robots for Autism Project Application

The Virginia Department of Education is offering a grant opportunity to school divisions to use robotic devices to aid in the academic and social-emotional learning of students on the autism spectrum.

The 2019 General Assembly passed an appropriation that provides funding to explore the use of robotic devices in aiding in the academic and social emotional learning of students on the autism spectrum. The full text of the appropriation follows.

**Item 135 Supplemental Education Assistance Programs**

HH. Out of this appropriation, $200,000 the second year from the general fund is provided to encourage the use of robots to aid in the education of students on the autism spectrum. Any school division that desires to apply for this competitive grant must submit a proposal to the Department of Education outlining the intended use of funds and a projected number of students who will be served. The Department of Education shall establish criteria by which to award these funds to school divisions. Local school divisions may use the funds to purchase robotic devices with proven effectiveness for aiding in the academic and social-emotional learning of students on the autism spectrum.

## Description of Project:

Selected divisions will be awarded up to $20,000 to purchase robotic devices to aid in academic and social/emotional learning for students on the autism spectrum. **Teams of professionals will submit the application to the Virginia Department of Education (VDOE) by   
November 30, 2019. All funds must be paid and spent by divisions by June 30, 2020.**

### Requirements:

1. Identification of a multidisciplinary team to develop and implement the grant project as well as identification of a project lead who will serve as the point of contact between the school division and VDOE. The team should include a special educator, related service professional, school or division administrator, division Information Technology professional, and others as appropriate.
2. Application will include a proposed itemized budget (Appendix A) with budget justification narrative. All funds must be utilized to purchase equipment for this project (Object code 6000).
3. Project description will include the number of students served, age, grade, and the classroom placement (majority self-contained or general education/ collaborative classrooms) of targeted students.
4. Applications will include the team’s selected goals for the project. Goals must address academic and/or social-emotional learning for students on the autism

spectrum. Additionally the goals should address the generalization of skills across people and environments.

1. Project goals will be categorized into one or more of the following domains:
   * Communication
   * Social/Interpersonal Skills
   * Self-care
   * Play
   * Emotional Wellbeing
   * Sensory Experiences and Coping
   * Motor Experiences and Skills
   * Preschool Skills
   * Functioning in Daily Reality
2. Goals of the project must align to at least one of the five C’s as outlined in the Profile of a Virginia Graduate. These include Critical Thinking, Creative Thinking, Collaboration, Communication, and Citizenship.
3. Measurable outcomes must be identified for each goal. Each funded project is required to submit to submit a final report to VDOE describing project implementation and its results based on identified outcomes.
4. Instructional strategies must be aligned to at least one evidence-based practice as identified by the National Professional Development Center on Autism Spectrum Disorders. See Appendix B for a listing of evidence based practices.
   * Note: The grant application must focus on instruction. Projects that utilize technology solely as reinforcement or as items for sensory breaks will not be accepted.
5. Application must include a plan for sustaining the project after the initial grant period.
6. Application must include a plan for maintaining the technology.

## Robots for Autism Application

**School Division:**

**School(s) Requesting:**

**Project Name:**

**Project Lead Information:**

* Name:
* Position:
* Email:
* Phone:
* Address:

**Other team members (name and email address):**

**Targeted Student demographic information:**

**Project description including selected technology (500 word maximum):**

**Goal 1:**

**What are the anticipated outcomes of this goal?**

**How will each outcome be measured?**

**Goal 1 Domain (select at least one):**

* Communication:
* Social/Interpersonal Skills:
* Sensory Experiences and Coping:
* Play:
* Emotional Wellbeing:
* Self Care:
* Preschool Skills:
* Motor Experiences and Skills:
* Functioning in Daily Reality:

**Select at least one of the five C’s that this goal will address:**

* Critical Thinking:
* Creative Thinking:
* Collaboration:
* Communication:
* Citizenship:

**Select at least one evidence-based practice (Appendix A) and describe how this practice will guide instruction.**

**Goal 2:**

**What are the anticipated outcomes of this goal?**

**How will each outcome be measured?**

**Goal 2 Domain (select at least one):**

* Communication:
* Social/Interpersonal Skills:
* Sensory Experiences and Coping:
* Play:
* Emotional Wellbeing:
* Self Care:
* Preschool Skills:
* Motor Experiences and Skills:
* Functioning in Daily Reality:

**Select at least one of the five C’s that this goal will address:**

* Critical Thinking:
* Creative Thinking:
* Collaboration:
* Communication:
* Citizenship:

**Select at least one evidence-based practice (Appendix A) and describe how this practice will guide instruction.**

**Goal 3:**

**What are the anticipated outcomes of this goal?**

**How will each outcome be measured?**

**Goal 3 Domain (select at least one):**

* Communication:
* Social/Interpersonal Skills:
* Sensory Experiences and Coping:
* Play:
* Emotional Wellbeing:
* Self Care:
* Preschool Skills:
* Motor Experiences and Skills:
* Functioning in Daily Reality:

**Select at least one of the five C’s that this goal will address:**

* Critical Thinking:
* Creative Thinking:
* Collaboration:
* Communication:
* Citizenship:

**Select at least one evidence-based practice (Appendix A) and describe how this practice will guide instruction.**

**How will the team sustain the project after the initial grant period?**

**How will the team ensure ongoing maintenance of the technology?**

**Please provide any additional information relevant to this project.**

At the conclusion of the project or no later than June 1, 2020, each team is required to report to VDOE a description of the project implemented and its results. Final reports should include:

1. Project description including use of procured technology
2. Number and age, grade, and classroom placement of students served by the technology
3. The results of each outcome identified in the application, and whether the project’s goals were met.
4. Other notable achievements or successes
5. Lessons learned from the project:
   1. Describe any aspects of implementation that were troublesome and/or unanticipated
   2. Provide advice that your team would give to another school for implementing a similar project.
6. Current plans for sustainability

Please return application to Daniel Irwin, Autism Specialist, at [Daniel.Irwin@doe.virginia.gov](mailto:Daniel.Irwin@doe.virginia.gov).

### Appendix A

Budget Worksheet

Due to the language in the appropriation, all funds requested must be categorized under object code 6000 – Materials and Supplies.

**School Division:**

**School(s) Requesting:**

| Object Code and Descriptions | Amount Requested |
| --- | --- |
| **Object Code 1000 Personnel Services** | **$ N/A** |
| **Object Code 2000 Employee Benefits** | **$ N/A** |
| **Object Code 3000 Purchased Services** | **$ N/A** |
| **Object Code 4000 Internal Services** | **$ N/A** |
| **Object Code 5000 Other Charges** | **$ N/A** |
| **Object Code 6000 Materials and Supplies** | **$** |
| **Object Code 7000 Joint Operations** | **$ N/A** |
| **Total Requested** |  |

### Appendix B

**National Professional Development Center for Autism Spectrum Disorders Evidence Based Practices**

For more information, visit [NPDC’s Evidence Based Practices](https://autismpdc.fpg.unc.edu/evidence-based-practices) for free online modules, implementation checklists, and other resources.

**Antecedent-based intervention** - Arrangement of events or circumstances that precede the occurrence of an interfering behavior and designed to lead to the reduction of the behavior.

**Cognitive behavioral intervention -** Instruction on management or control of cognitive processes that lead to changes in overt behavior.

**Differential reinforcement of Alternative, Incompatible, or Other Behavior** - Provision of positive/desirable consequences for behaviors or their absence that reduce the occurrence of an undesirable behavior. Reinforcement provided: a) when the learner is engaging in a specific desired behavior other than the inappropriate behavior (DRA), b) when the learner is engaging in a behavior that is physically impossible to do while exhibiting the inappropriate behavior (DRI), or c) when the learner is not engaging in the interfering behavior (DRO).

**Discrete trial teaching** - Instructional process usually involving one teacher/service provider and one student/client and designed to teach appropriate behavior or skills. Instruction usually involves massed trials. Each trial consists of the teacher’s instruction/presentation, the child’s response, a carefully planned consequence, and a pause prior to presenting the next instruction.

**Exercise** - Increase in physical exertion as a means of reducing problem behaviors or increasing appropriate behavior.

**Extinction** - Withdrawal or removal of reinforcers of interfering behavior in order to reduce the occurrence of that behavior. Although sometimes used as a single intervention practice, extinction often occurs in combination with functional behavior assessment, functional communication training, and differential reinforcement.

**Functional behavior assessment** - Systematic collection of information about an interfering behavior designed to identify functional contingencies that support the behavior. The FBA consists of describing the interfering or problem behavior, identifying antecedent or consequent events that control the behavior, developing a hypothesis of the function of the behavior, and/or testing the hypothesis.

**Functional communication training** - Replacement of interfering behavior that has a communication function with more appropriate communication that accomplishes the same function.

**Modeling** - Demonstration of a desired target behavior that results in imitation of the behavior by the learner and that leads to the acquisition of the imitated behavior. This EBP is often combined with other strategies such as prompting and reinforcement.

**Naturalistic intervention** - Intervention strategies that occur within the typical setting/activities/routines in which the learner participates. Teachers/service providers establish the learner’s interest in a learning event through arrangement of the setting/activity/routine, provide necessary support for the learner to engage in the targeted behavior, elaborate on the behavior when it occurs, and/or arrange natural consequences for the targeted behavior or skills.

**Parent-implemented intervention** - Parents provide individualized intervention to their child to improve/increase a wide variety of skills and/or to reduce interfering behaviors. Parents learn to deliver interventions in their home and/or community through a structured parent training program

**Peer-mediated instruction and intervention** - Typically developing peers interact with and/or help children and youth with ASD to acquire new behavior, communication, and social skills by increasing social and learning opportunities within natural environments. Teachers/service providers systematically teach peers strategies for engaging children and youth with ASD in positive and extended social interactions in both teacher-directed and learner-initiated activities

**Picture Exchange Communication System** - Learners are initially taught to give a picture of a desired item to a communicative partner in exchange for the desired item. The PECS consists of six phases which are: (1) “how” to communicate, (2) distance and persistence, (3) picture discrimination, (4) sentence structure, (5) responsive requesting, and (6) commenting.

**Pivotal response training** - Pivotal learning variables (i.e., motivation, responding to multiple cues, self-management, and self-initiations) guide intervention practices that are implemented in settings that build on learner interests and initiative.

**Prompting** - Verbal, gestural, or physical assistance given to learners to assist them in acquiring or engaging in a targeted behavior or skill. Prompts are generally given by an adult or peer before or as a learner attempts to use a skill.

**Reinforcement** - An event, activity, or other circumstance occurring after a learner engages in a desired behavior that leads to the increased occurrence of the behavior in the future.

**Response interruption/ redirection** - Introduction of a prompt, comment, or other distracters when an interfering behavior is occurring that is designed to divert the learner’s attention away from the interfering behavior and results in its reduction.

**Scripting** - A verbal and/or written description about a specific skill or situation that serves as a model for the learner. Scripts are usually practiced repeatedly before the skill is used in the actual situation.

**Self-management** - Instruction focusing on learners discriminating between appropriate and inappropriate behaviors, accurately monitoring and recording their own behaviors, and rewarding themselves for behaving appropriately.

**Social narratives** - Narratives that describe social situations in some detail by highlighting relevant cues and offering examples of appropriate responding. Social narratives are individualized according to learner needs and typically are quite short, perhaps including pictures or other visual aids.

**Social skills training** - Group or individual instruction designed to teach learners with autism spectrum disorders (ASD) ways to appropriately interact with peers, adults, and other individuals. Most social skill meetings include instruction on basic concepts, role-playing or practice, and feedback to help learners with ASD acquire and practice communication, play, or social skills to promote positive interactions with peers.

**Structured play group** - Small group activities characterized by their occurrences in a defined area and with a defined activity, the specific selection of typically developing peers to be in the group, a clear delineation of theme and roles by adult leading, prompting, or scaffolding as needed to support students’ performance related to the goals of the activity.

**Task analysis** - A process in which an activity or behavior is divided into small, manageable steps in order to assess and teach the skill. Other practices, such as reinforcement, video modeling, or time delay, are often used to facilitate acquisition of the smaller steps.

**Technology-aided instruction and intervention** - Instruction or interventions in which technology is the central feature supporting the acquisition of a goal for the learner. Technology is defined as “any electronic item/ equipment/ application/or virtual network that is used intentionally to increase/maintain, and/or improve daily living, work/productivity, and recreation/leisure capabilities of adolescents with autism spectrum disorders.”

**Time delay** - In a setting or activity in which a learner should engage in a behavior or skill, a brief delay occurs between the opportunity to use the skill and any additional instructions or prompts. The purpose of the time delay is to allow the learner to respond without having to receive a prompt and thus focuses on fading the use of prompts during instructional activities.

**Video modeling** - A visual model of the targeted behavior or skill (typically in the behavior, communication, play, or social domains), provided via video recording and display equipment to assist learning in or engaging in a desired behavior or skill.

**Visual support** - Any visual display that supports the learner engaging in a desired behavior or skills independent of prompts. Examples of visual supports include pictures, written words, objects within the environment, arrangement of the environment or visual boundaries, schedules, maps, labels, organization systems, and timelines.