An Accommodation Model

An approach for addressing needs of individuals with disabilities

The Americans with Disabilities Act of 1990, its amendments, and other federal and state legislation require that schools make programs accessible to students with disabilities. Disability-related accommodations are unique to each individual. With appropriate accommodations, students with disabilities can be challenged to reach the same high academic standards set for students without disabilities. DO-IT's *Accommodation Model* and *Student Abilities Profile* are tools that can help teachers work with students to create an optimum learning environment.

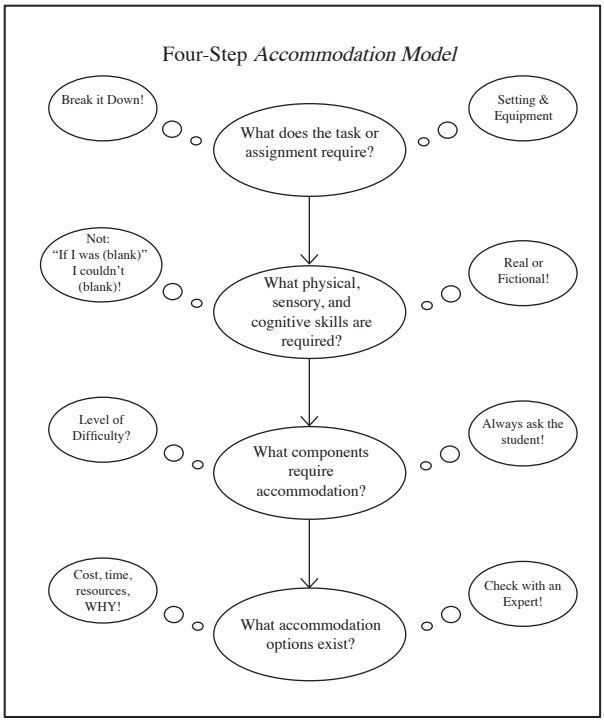
The Process

It is helpful to have a process to follow when determining appropriate accommodations for students with disabilities. DO-IT has developed a model process and a *Student Abilities Profile* form for creating effective accommodations.

The *Accommodation Model* can be used by any instructor and is composed of the following four steps (Burgstahler, 2006, pp. 49-50; Burgstahler & Nourse, 1998, pp. 65-66).

Step #1: What does the task or assignment require? Break down all of the components of the experiment, assignment, or exercise. As an educator, you are usually focused on the overall outcome of the project. To accommodate a student with a disability it's important to think about the specific settings, tools, skills, and tasks that are required at each step. By analyzing and evaluating the task thoroughly, you will be able to determine how best to fully and effectively include a student with a specific disability.

Step #2: What physical, sensory, and cognitive skills are needed? Match the tasks required to the physical, sensory, and cognitive skills needed to successfully complete the project. It is easy to say, "If I had a physical, sensory, or cognitive disability I would not be able to complete this assignment," without really determining what skills are needed for specific aspects of the project. We need to separate the real requirements of a specific task from the fictional or perceived requirements of the overall project. It is impossible to place yourself in the shoes of the student with a disability. She may have learned many ways to solve a specific problem or task and work around the limitations imposed by the disability.



Step #3: What components of the task require accommodation? Once the task has been analyzed and the skills needed are identified, determine what accommodations may be required or how the learning experience might be altered to make it more accessible. Determine the level of difficulty of the project and determine how best to make an accommodation to create an inclusive environment for a student with a disability. It is very important to consult with the student to determine what they perceive as aspects of a project that they may need an accommodation or assistance.

Step #4: What accommodation options exist? Now that the tasks that need accommodation have been determined, identify what resources exist for providing the needed accommodation(s). The student may have some good ideas. However, this is a time when other staff and professionals may have expertise in specific areas and be called on to provide input. In some cases, having students work in groups where each person is assigned a task that they have the ability to complete provides a reasonable alternative.

The *Student Abilities Profile*

The *Student Abilities Profile* form is designed to help you determine a student's abilities and break down the individual components of an assignment. The form asks you to briefly describe the student; the classroom or laboratory environment; equipment or supplies needed; physical, sensory, and cognitive skills needed for the task; possible accommodations; and available professional and external resources. Examples of completed forms for specific students can be found at *www.uw.edu/doit/MathSci/sap.html*.

Universal Design

Building accessibility features into an environment or service, such as a science or math class, can make it more usable by all students. For example, having one workstation in a science lab that is adjustable in height makes the space accessible to future students who might use wheelchairs or be large or small in stature. More information about and examples of universal design can be found at the *Applications of Universal Design* web page at *www.uw.edu/doit/Resources/udesign.html*.

One Science Teacher's Experiences with the *Accommodation Model* and *Student Abilities Profile*

So what do I do when a student with a disability actually walks or rolls through the doorway? I use DO-IT's *Accommodation Model* and *Student Abilities Profile*. I take time at the beginning of the year to sit down with the student and the student's special education teacher. This meeting is well worth the effort.

I consult with the expert, the student, when filling out the *Profile*. Some of the accommodations that the student and I discuss may be as simple as photocopying lecture notes, creating a lap desk for a student who uses a wheelchair to allow her to use a microscope, providing access to safety equipment, or having handouts enlarged. Using this method, I am better able to understand how the student learns best and what specific accommodations will be most effective.

Following is an example of how I used the *Accommodation Model* and *Student Abilities Profile* with a student named Alice, who has Attention-Deficit/Hyperactivity Disorder (AD/HD). The specific task is alloying zinc and copper. Notes on the four questions presented in the *Accommodation Model* are provided below (Burgstahler, 2006, pp. 52-53; Burgstahler & Nourse, 1998, p. 96-98).

STUDENT ABILITIES PROFILE

Narrative Regarding Student and Accommodation Issues:	Equipment: (lab equipment, computer, manipulatives)
Task / Assignment:	Environment: (fumes, odors, dust, temperature, noise, group work)

Physical Challenges	Accommodations Needed	Options and Resources
Sensory Challenges	Accommodations Needed	Options and Resources
Cognitive Challenges	Accommodations Needed	Options and Resources

Physical Issues	Sensory Issues	Cognitive Issues
Think of the required physical aspects of the task. What will make the environment accessible, keep the student safe, and allow him/her to be an active participant? What equipment must be manipulated?	Think of room temperature, noise, fumes, dust, odors, and allergies. Also consider the ability to speak and/or communicate, and the visual aspects of the task or assignment.	What memory and communication skills are needed? What is the level of complexity of the task.
Physical Challenges	**Sensory Challenges**	**Cognitive Challenges**
1. lift/carry 2. stamina/endurance 3. push/pull 4. knee/squat 5. reach 6. repetitive tasks 7. fine motor: pinch/grasp 8. fine motor: manipulate/maneuver 9. gross motor 10. sit in chair 11. walk/stand 12. balance 13. bend/twist 14. stoop/crouch 15. other	1. vision 2. hearing 3. touch 4. smell 5. taste 6. oral communication 7. temperature 8. fumes 9. external stimuli 10. lighting 11. other	1. short-term memory 2. long-term memory 3. task complexity 4. reading 5. writing 6. spelling 7. string of numbers (math) 8. paying attention 9. visual, auditory, or kinesthetic learner. 10. self-esteem/advocacy issues 11. behavior issues/acting out 12. other

Step 1: The task requires the student to:

- use small letters
- follow directions
- follow safety procedures
- use a scale
- use a hot plate
- use a Bunsen burner
- write observations

Step 2: The physical, sensory, and cognitive skills needed for the task include the following:

Physical challenges:
- fine motor grasp/manipulation
- sitting
- walking/standing

Sensory challenges:
- vision
- touch
- smell

Cognitive challenges:
- complex thinking
- reading
- writing
- attention span
- behavior that ensures safety

Step 3: Components of the task that require accommodation for Alice include the following:

Physical:
- Alice needs no physical accommodations.

Sensory:
- There will need to be some accommodations for sensory issues, such as dimming lights, limiting external stimulation, and sitting next to quieter students.

Cognitive:
- Alice will need accommodations to help break down complex tasks and focus on the activities.

Step 4: Accommodation options include the following:

- I will make sure that Alice is near me when I explain directions.
- If the lab is set up in advance, I will not put the items in front of Alice because she will play with the equipment rather than pay attention.
- I will make sure she has a responsible partner for the lab and give her the directions two or three steps at a time. When she finishes a set of steps, she can have the next set. This way I know she is following the directions and not jumping around just to get done. It also means that she is checking in with me even if I can't check on her every ten minutes.
- When the students begin to work, I will check with Alice and make sure she has heard all of the safety issues before starting.
- Every time Alice does a good job in the lab, I will make sure to tell her.

These notes can be used while completing the *Student Abilities Profile* for Alice. Her form, along with more examples of *Student Abilities Profiles* created by DO-IT staff and collaborators, can be found at *www.uw.edu/doit/MathSci/sap.html* (Burgstahler, 2006, pp.55-80; Burgstahler & Nourse, pp. 69-94). The completed *Student Abilities Profile* provides a record with a focus on what the student's abilities are and what he or she may need assistance with. It can be kept in the student's file and used for reference throughout the year to make sure that the student participates to the fullest extent possible in all activities.

References

The content of this handout has been replicated in other DO-IT publications that include the following:

Burgstahler, S. (Ed.) (2006). *Making math, science, and technology instruction accessible to students with disabilities*. Seattle: DO-IT, University of Washington. *www.uw.edu/doit/MathSci/*.

Burgstahler, S. & Nourse, S. (Eds.) (1998). *Accommodating students with disabilities in math and science classes*. Seattle: DO-IT, University of Washington.

Additional Resources

More examples of accommodations for students with disabilities can be found in the DO-IT publications at *www.uw.edu/doit/Brochures/*. These include:

- *Working Together: Science Teachers and Students with Disabilities*,
- *The Winning Equation: Access + Attitude = Success in Math and Science*,
- *Equal Access: Making Science Labs Accessible to Students with Sensory Impairments*,
- *Working Together: Faculty and Students with Disabilities*, and
- *Working Together: K-12 Teachers and Students with Disabilities*

For information on a proactive approach to serving students with disabilities, consult *The Center for Universal Design in Education* at *www.uw.edu/doit/CUDE/*.

About DO-IT

DO-IT (Disabilities, Opportunities, Internetworking, and Technology) serves to increase the successful participation of individuals with disabilities in challenging academic programs and careers, such as those in science, engineering, mathematics, and technology. Primary funding for DO-IT is provided by the National Science Foundation, the State of Washington, and the U.S. Department of Education.

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