

ACES STEMBucket Challenge

An overview of Playful and Frugal Aspects

For the ACES STEMBucket Challenge we are looking for activities and learning designs that develop STEM learning competencies and incorporate aspects of both playful learning and frugal education practices. For more information on what we mean by playful and frugal, please refer to the aspects detailed below...

Playful Aspects

The following aspects, among others, represent the characteristics that are often demonstrated in playful activities. They are also frequently interrelated. By considering these aspects in your design, you will be able to create engaging, motivating, and meaningful activities for learners to participate in. Some aspects to consider are:

Autonomy

Encourage the ability to take control and make decisions within an activity. The activity usually allows for the freedom to explore the challenges associated with it.

Fun

Facilitate engaging experiences that can evoke emotionally driven participation. There are two main types of fun, which are easy and hard. Easy fun is often associated with fantasy and imagination through engaging stories and gameplay. Hard fun can be linked to our need to improve our skills, often when tackling a challenge.

Agency

Encourage learners to respond to and act on challenges during the activity. Learners can take charge, making choices about what they do and how.

Curiosity

Instil the sense of wonder and the need to explore and investigate. Encourage the need to know, the need to feel, and the need to value during the activity.

Iteration/experimentation

Allow multiple “tries” of the same task. By repeatedly attempting an activity, multiple solutions and consequences can be explored and reflected on. Hypothesis testing can occur to discover different alternatives. Learning through play should lead to developing greater degrees of flexibility, tolerance, and reflection.

Social

Social interaction is key to learning. Learners become more informed, gaining a wider perspective, and are capable of making better decisions when engaging with others.

Frugal Aspects

The following aspects have been designed to help guide you in the creation of great frugal education practice. Whether you’re creating brand new activities or adapting existing ones, we recommended you consider each aspect to help you create frugal, practical, and sustainable education. These aspects are:

Creative

Seek inspiration from disparate sources when creating or expanding upon your design. Combine ideas, techniques, and concepts from different disciplines in innovative ways. Foster experimentation, creative thinking, and problem-solving within your participants and incorporate their insights into future iterations of your design.

Collaborative

Great learning design is achieved through collaboration. Include your audience in the design process; the earlier the better! Listen to your audience, encourage participation, and be empathetic to their needs, concerns, and suggestions for improvement. Use what you learn to co-create the learning design with those it is designed to serve.

Open

Share your designs by making them freely available within the public domain for the benefit of all. Allow others to apply, adapt, and build upon your work through clear and detailed guidance. Make your designs easily discoverable, accessible, and openly licensed through the power of Creative Commons.

Resourceful

Leverage available resources that can be sourced from your local environment and wider community. Recycle, upcycle, and combine materials and trailing-edge technologies in new and inventive ways, extracting untapped value and extend their lifespan. Inspire your students by promoting a culture of resourcefulness.

Practical

The latest gadgets and educational fads are great and everything... but are they the best tools for the job? Consider the practicality of your design; the technologies and materials required; the physical and virtual spaces you inhabit; the intellectual and physical accessibility; and the financial and human resource costs of delivery.

Resilient

Sometimes technology fails, spaces are unavailable, and global pandemics grind life to a halt. Equip your designs with the flexibility to adapt gracefully to unforeseen circumstances.

Minimal

Be economical with the resources that constitute your design. Look to reduce administration, streamline processes, and minimise costs. The simpler your design, the easier it will be to build, deliver, and manage. Freeing up valuable resources that can be used to better serve your learners.

Sustainable

Whether designing from scratch or adapting existing practice, consider the wider impact of your design on the environment. Think about the first-order effects of your design decisions and how they might impact the local environment. Now zoom out and consider the second-order effects of your design from a global perspective.

Iterative

Don't overthink it. Start small and iterate often. Test the effectiveness of your design through rapid prototyping, giving you the flexibility to respond quickly and effectively to the needs of your audience. Design, resource, build, and deliver quality education through a continuous cycle of improvement and refinement.