

## STEAM DISCOVERY CENTRE ACTIVITY AND IDEAS CARDS



**Foster children's development of STEAM by providing them with opportunities to explore and discover.**

Through incorporating aspects of STEAM into play with resources such as the STEAM Discovery Centre, children can be encouraged to:

- Show curiosity and a 'can do' attitude
- Be resilient and develop a growth mindset
- Seek out and enjoy challenges
- Think of ideas and find new ways of doing things
- Solve problems
- Test their ideas
- Notice patterns, make links and predictions, estimate and hypothesise
- Plan and make decisions about how to approach a task
- Be able to change strategy and review their approach
- Communicate, collaborate, and make compromises

You may have noticed that all of the aspects above are important building blocks for learning. STEAM, therefore, go hand in hand with the values of the early years. It is a holistic approach that intertwines the different areas of learning (Science, Technology, Engineering, Arts, and Mathematics)



## Starting Early with the STEAM Discovery Centre

Early years doesn't necessarily come to mind for many practitioners and teachers when considering STEAM. However, STEAM is central to children's learning and development in the 21st century so why not get them started early with the introduction of the STEAM Discovery Centre?



Children start to observe and explore from an early age. STEAM is about fostering that early sense of awe, wonder, imagination, and creativity. Young children tend to be really inquisitive and interested in finding out about their surroundings and how the world around them works.

Sometimes, this fascination can be observed through a child's schematic interests – repeated behaviours/actions that children demonstrate through play and which facilitate development. The design of the STEAM Discovery Centre can encourage children to explore these interests in a way that is appropriate for the age and stage of the child.



# Supporting Schematic Interests

Young children may show a preference towards schematic behaviours. The STEAM Discovery Centre can be used to support these interests.

## Rotation

- Roll balls and other resources along the top of the STEAM Centre to make the balance tip back and forth, or through the holes and down the track to see them cascade down the ramps.
- Thread materials such as cylinders, sticks, or tubes through the various holes, exploring which fit and work the best and which don't. Some children may enjoy the act of simply twisting and turning objects whilst watching them rotate.

## Positioning

- Line up, thread, or stack different items e.g., blocks, bricks, or cylinders onto the different parts of the STEAM centre.
- Position items in the grooves along the top of the balance, or thread resources such as cylinders, pipes, or ribbons through the holes.



## Supporting Schematic Interests Continued...



### Transporting

- Keen transporters may move items from one area of the STEAM Centre to another, either carrying these in their hands or using containers or buckets of different sizes.
- Children may enjoy moving and travelling around the STEAM Centre to experiment and explore the different parts. The 360 degree design allows children to gather around and experiment from different angles.

### Connecting

- Use different loose parts and construction materials to build and stack along the top of the balance.
- Provide a range of materials such as pipe cleaners, tubing, string etc so that children can thread, connect, or hang things from the STEAM Centre.



# Let's Get Talking

## Mathematical language

Whilst exploring, children will naturally encounter different types of language. They may use vocabulary to describe shape, size, weight and position.

## Meaningful interactions and conversations

As children gather around the centre to explore, they will begin to develop their ability to cooperate with their peers. This could be in the form of taking turns, working together collaboratively, sharing resources, discussing ideas, demonstrating their learning, and resolving any problems that arise.

## Asking questions

The STEAM Discovery Centre lends itself perfectly to independent learning. It encourages children to pose their own questions, investigate, find answers, and draw their own conclusions. As children become curious about different concepts, questions such as how, why, and what may be asked.



# Water Play

- Children can have fun exploring how water can travel in different ways, including flowing across the top of the balance or cascading down the ramp track.
- Alternatively, they could investigate changing the flow, speed, course, and direction of the water using different materials such as clear tubing, bricks, or cylinders. These can be threaded through the holes or placed along the balance to create dams that completely block or limit the amount of water allowed to pass.



Why not add food colouring or soapy bubbles for a different experience?

## Getting Creative

What inventions can you dream up?

- Adding loose parts to the play can lead to many different outcomes. By incorporating small world resources or construction and art materials, children can use their imaginations and creativity to weave stories into their play, build mechanisms and machines with the internal workings visible or create artistic installations.
- The STEAM Discovery Centre may become part of your construction area or could be transformed into an aeroplane where the wings have to be balanced to land. Alternatively, it may become a castle for a story setting or a famous sculpture or building. Children can plan, design, make decisions, select resources, evaluate, and adapt their creations as they go along to improve upon their initial thoughts and ideas.

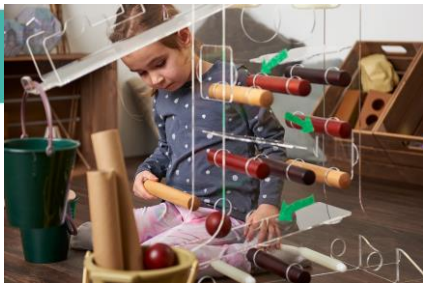


**'Imagination has given us the steam engine, the telephone, the talking machine, and the automobile, for these things had to be dreamed of before they became realities'**

**L. Frank Baum, Author of The Wonderful Wizard of Oz**

## Designing and Building Ball Runs

- Explore and experiment with how objects such as balls, travel along the balance or down the ramp track. Extend by changing the size and weight of the objects, adding or removing obstacles such as cylinders (gradually or completely), or use different materials on the surface of the balance or ramps to investigate concepts such as friction and speed.
- Why not add mark-making to the activity? They can add obstacles before hypothesising and making predictions on the direction and path they think the ball or object might take. Using chalk markers, they could add arrows to record their thoughts. Children can then test their ideas to see if their predictions were correct. If not, can they work out why and fix it?
- Some children might also like to time how long it takes for an object to get from the top of the ramp track to the bottom. They could time the journey by counting or using timing devices such as stopwatches etc. Can they make the journey time longer or shorter? What variables can they change to achieve different outcomes?
- As children experiment with the STEAM Centre, they will become engineers as they carefully position, pivot, manoeuvre, balance and block.





# Balancing Weights

- One of the many ways to utilise the STEAM Discovery Centre is as a balance. Children can use different vessels on the ends of the arms such as buckets, baskets, or upcycled containers to collect items or water, finding out which is the heaviest or lightest.
- Can they add or remove objects to make the STEAM Centre balance, or explore more challenging concepts e.g., comparing larger but lighter items with smaller, heavier ones?
- Challenge the children to find different ways to make it balance. This may be by hanging articles on either end, lining materials up along the top of the balance, or constructing towers to stabilise the arms.



## Ready, Steady, Glow



- Due to the STEAM Discovery Centre being made from clear acrylic, it lends itself particularly well to being used with glow resources such as glow construction bricks, cylinders, and balls, etc.
- As the resources are threaded and stacked onto the STEAM centre, they add an element of awe and wonder to the play. When you use light-up resources in a semi-darkened environment, the acrylic takes on a different appearance with the edges shimmering in the light, shadows being cast around the room and the ordinary becoming the extraordinary.



For extra effect, why not try layering light by using a light projector, torches or other glow resources? When combined with the clear, acrylic structure of the STEAM Discovery Centre, an atmospheric and engaging learning environment will emerge, adding a whole new dimension.

## Bubbles, Gloop and Ooze

- Incorporate a sensory element to the STEAM Centre by adding soapy bubbles, gloop, slime or jelly. Children may find it calming and mesmerising to watch the slime or other materials slowly slide along the balance as they tip it back and forth.
- Pour slime or gloop down the ramp track to watch it slowly glide and drip down the ramps. Once the children have finished with the activity, why not turn it into water play by pouring over soapy water to clean it, ready for a new adventure?



**If you have any adventures with the STEAM Discovery Centre that you would like to share with us, please get in touch.**



## Mindful Tinkering

- For some children the simple act of tinkering such as posting, threading, and positioning can provide a sense of calm and can be quite captivating.
- These simple actions can encourage mindfulness and can help with focus and attention. The fact that you are having to think carefully about where to balance and position objects means that you are focused on the moment, rather than thinking about anything else.
- Not only may the children use the STEAM Discovery Centre to support self-regulation and relaxation, they will also experience different STEAM concepts at the same time without even realising it.

