

## SPRINGHEAD SCHOOL LEARNING ZONE SUPPORTING THE DEVELOPMENT OF COGNITION AND LEARNING

### Research Basis for Design of the Learning Zone

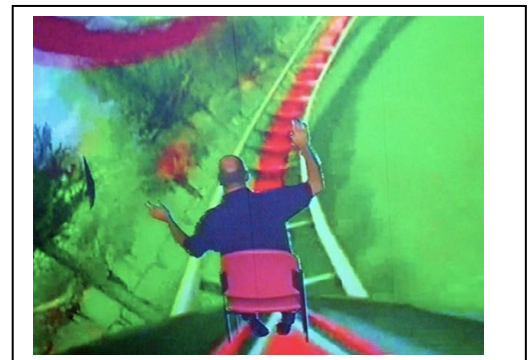
*“All learning takes place in the brain, but it is the body which acts as the vehicle by which knowledge is acquired. Both brain and body work together through the central nervous system and both are dependent on the senses for all information about the outside world. (Goddard, 2004)*

- Learning about the world begins with the senses that inform the individual about the internal state of the body. This is called *proprioception*. Next, the child starts to become aware of the ‘near’ external world through touch, taste and smell (the *cutaneous* senses). It is only when visual and auditory skills have been established that the child will begin to explore further afield. Cognition is the final common pathway. *Pagliano 2001*.
- Pagliano also suggests that ‘pleasure is fuel for the brain’. It strengthens concentration, which then strengthens neuronal connection; pleasure triggers a hormonal reaction in the brain which helps strengthen the ability to learn.

The Learning Zone has been designed to provide a community resource for Springhead School pupils, and other groups by arrangement, that promotes ‘learning through movement’ - it is a unique facility for adventurous and imaginative learning.

The flooring is made from flexible vulcanised rubber. These anti-slip, impact-absorbing floor tiles are warm to the touch, and lock together to form a smooth floor that is non-porous and easy to clean.

**Zone 1** provides a blank canvas, where a vibrant palette of lights can be projected to give a stunning world of colour; green screen video technology can create any environment which may be out of reach of the pupils (the moon, under water) or re-create somewhere already experienced (the beach, a pop concert).



Green screen ‘roller coaster’

Zone 1 is designed to not only promote learning through movement, but also to help with interactions, develop relationships, help confidence to grow, and to develop perception and non-contextual learning. It includes a stage where users can interact within any scene of their choice. Lighting and aromas can heighten the realism of the experience, for example the smell of fresh cut grass, or the pungent aroma of the farmyard! A wind machine can replicate anything from a cool breeze to a howling gale, and a low lying optical haze machine will mimic a light mist to a thick fog or sea fret. The machine produces a fine mist of water molecules that act as 'projection screens' in the air and give the beams of light a more tangible effect.

A disco ball, projector, roving spot light and a noise-activated light show add versatility to this area of the Learning Zone.

At the far end of Zone 1 is soft seating, wrapped around a water bed; this combines the opportunity for gentle movements with pressure-reducing, harmonious and adaptive responses on the warm water mattress. Adjacent to the water bed is an interactive bubble screen, lit by "high brightness" LEDs and featuring a remote control box to enable a pupil to select a change of colour for the fast-rising bubbles, successfully promoting relaxation and calm.



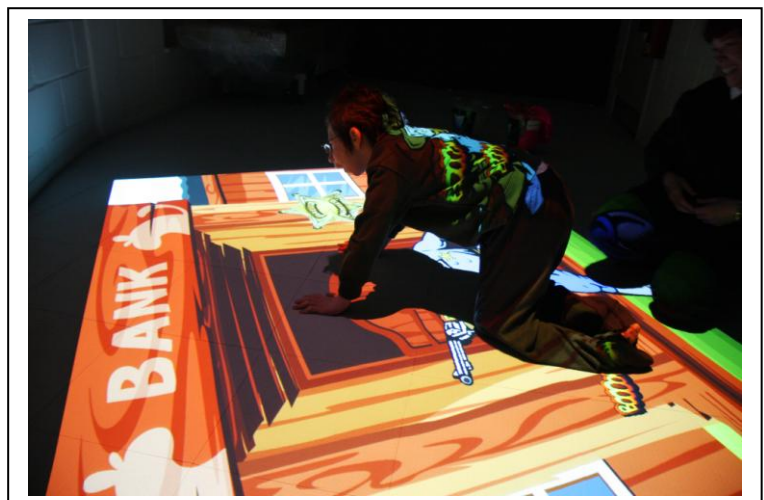
Luka on the waterbed, and Robert controlling the bubble screen

**Zone 2** consists of a magical interactive floor system, where our young people can use sound, movement and touch to create experiences, motivate learning and generate memories. Most of our pupils can naturally communicate through gesture, expression and movement. This system understands these actions and engages people to interact naturally with each other and the environment.



Example Scene: Pond Effect: Complete with water sound effects this programme has various fish swimming amongst the rocks. Children can stand, jump or touch the pond's water creating ripple effects even with the slightest touch

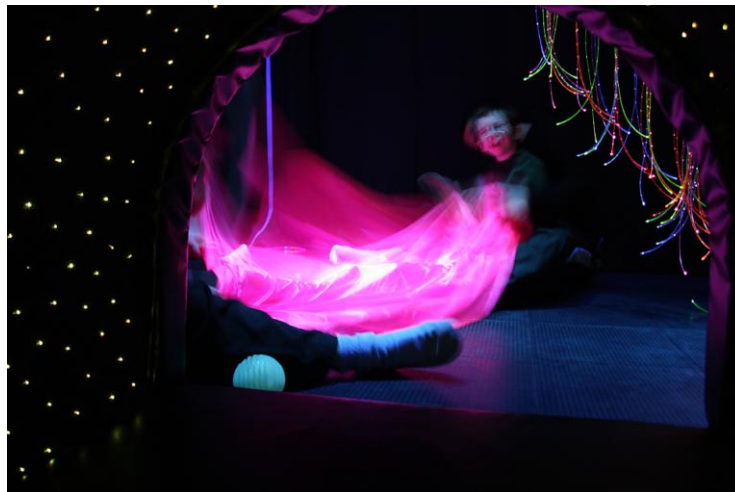
Simply by moving across the floor, anyone can interact with the computer-generated images. There are dozens of different backgrounds – all designed to get pupils moving, laughing and learning



**Zone 3** is the dark room, with a smaller area within for visual assessment and close up one-to-one work. UV light, also known as black light, is a highly visual medium that encourages concentration, attention, tracking and focus, thus promoting participation. This zone is considered to be especially beneficial for those with autism, or sensory impairments such as visual. When used with UV reactive materials, equipment shines intensively, creating a very brilliant visual effect which can aid tracking and fixation skills. There is also a Fibre Optic Tunnel, allowing the user to crawl through it and lay on a padded floor watching the lights twinkle all around them.



If all this is too much, then with a flick of a switch we can fade to a mirage of stars twinkling around the room – magical!



This is an amazing resource that we have been able to share with other special schools and partner organisations. We also hold regular family sessions with our trained staff during school holidays.

'If we can extend our capacities to move, we can also expand our capacity to learn'  
(Somatic movement education)