

# Intelligent Materials Toolkit



Using found media and recycled resources provide a wealth of learning experiences and opportunities for children.

Using these 'intelligent materials' helps children to make connections - they can investigate cause and effect and develop problem solving skills. Using tools also provides rich opportunities to develop risk management skills which help to improve children's confidence and self-esteem. Group activities using found media from the everyday world can support sustained shared thinking and imaginings and provides chances to develop representational skills through the creation of 2-D and 3-D structures, sculptures, models, and collages. Feelings of satisfaction and self-approval will contribute to children's well-being and promote children's sense of achievement as they develop an understanding of the pleasure gained from their own creations. It also supports children in developing ways of valuing everyday objects, which gives them a sense of not wasting anything and seeing how things can be re-used or recycled.

## Links with the Early Years Foundation Stage

### A unique child

- Inclusive practice: using intelligent materials supports all ages and stages of development. Very young children can explore the materials and their use can be varied and used on the table or the floor. This toolkit gives some ideas to support this.
- Health and well-being; - observing creativity and developing children's knowledge of the environment, discovering that everyday objects can be used to represent something else.

### Positive Relationships:

- respecting each other : chances for sharing and turn taking
- supportive of the child's own efforts and independence
- adult interactions are supportive of the child's own efforts and independence.

### Enabling Environments

- Practitioners provide stimulating resources, relevant to all the children's cultures and communities.
- rich learning opportunities through play and playful teaching.
- differentiation between ages and abilities,
- supporting children to execute their own ideas with open ended play - no 'finished products'

### Characteristics of Effective Learning.

- play and exploration active learning,
- creativity and critical thinking - cause and effect, problem solving, unrestricted access, time to develop ideas with supporting adults open ended. Using intelligent materials create great ways of developing problem solving, imagination, critical thinking and working together.

*Practitioners Should Always constantly consider...*

Engagement – Playing and Learning  
Motivation – Active Learning

Thinking – Creating and thinking critically



## Areas of Learning and Development

### Prime Areas

- **Personal Social and Emotional Development**
- **Physical Development**
- **Communication and Language**



Providing experiences that encourage a sense of wonder through child friendly materials will develop imagination. This helps to develop children's ability to become creative with the endless amounts of found materials from everyday living. Intelligent Materials or junk modelling as it was formerly known is a good way of letting children access a variety of found materials and objects that are in the home or external environment. They can explore shape, texture, form to stimulate their imagination.

The use of found materials encourages young children to think of ideas, problem - solve as they build and practice mathematical thinking as they manipulate different shapes and angles. You can save a variety of developmentally appropriate materials including: boxes of all sizes from miniature to large cartons, bottle tops, corks, ribbons, string, wool, tissue paper, wrapping paper, greaseproof paper, drinking straws, bits of fabric, cardboard tubes, cotton wool and lollipop sticks.

Make sure that anything you're re-cycling is risk assessed, clean and has no sharp edges. You can maximise your junk making boxes potential with strong craft glue, sticky tape, in a sturdy dispenser so that children can use it themselves and not have to wait ages for glue to dry. Other joining resources could include; treasury tags, pipe cleaners, split pins, string, paper clips. Don't forget the scissors (both left and right handed). You should always supervise children when they are involved in junk modelling activity and using the above tools. You can transform your intelligent materials into a 2D and 3D art gallery and wall display

### Specific Areas

- Literacy
- Mathematics
- Understanding the World
- Expressive Arts and Design



The use of found materials encourages children to think of ideas and problem-solve as they build and practice mathematical thinking. They can learn how to manipulate different shapes and angles. A good idea is to mark bottle tops using a permanent marker with numbers and letters, plain tops can be used to sort into colour and size.

### **Imaginative Play**

The use of intelligent materials is a great way to support children's imagination. It has no rules children can make whatever the materials suggest to them. Children can conjure up designs and problem – solve as they build up their models. Sometimes it's good to work on a joint large scale model for example if children want to make a vehicle, house, castle, train or den. They can make 3d sculptures and 2d collages.

### **Creative Play**

Children can explore ideas of using large pieces of wallpaper, newspaper, fabric that can make wonderful 'gowns', 'cloaks' and 'capes' They can use cardboard tubes for bangles, tin foil beads for necklaces, tissue box for shoes and tissue paper broaches. Milk bottle tops can be pirate treasure and money to spend at the shops. Jar lids can be used to make rattles or musical instruments.

### Physical Play

Fine and gross motor skills can be developed as well as hand eye co-ordination. Development of large muscle movement is particularly evident in the outdoor area. This is when old plastic storage boxes can be filled with soil to make a miniature world. Don't forget to look round the garden for redundant plant pots, seed trays and twigs, cones, shells, pebbles, stones, garden string, tree bark, bark chippings and dried leaves are all valuable for creating a scene.

### Dressing Up

Newspaper gowns, fabric cloaks and capes, cereal crowns, watches and bangles made from cardboard tubes, necklaces of tin foil beads, wrapping paper broaches, tissue box shoes, bottle top medallions, tissue paper flowers and crepe paper hats.

### What's in your making box?

Boxes of all sizes from miniature to large cartons, bottle tops, corks, ribbons, string, wool, tissue paper, wrapping paper, greaseproof paper, crepe paper corrugated card, cellophane, drinking straws, bits of fabric, cardboard tubes, cotton wool, lollipop sticks, egg boxes, paper plates, sweet wrappers, odd buttons, tin foil, dolly pegs, yoghurt pots.

### Art Gallery

To display art work in 2 and 3 dimensions use a large carton with a cut out window and decorate. Display the children's art inside using the depth of the frame to show creations



### Reflecting on practice

It's worth recollecting the time you spent outdoors as a child and how these experiences often stay in your memory. Time spent planning and gathering resources in advance will pay dividends and provide good opportunities for observations and next steps of learning.

## Reflecting on Practice / Self Evaluation

Before you go any further, you might find it useful to evaluate how good your practice is right now.

The questions below may help you to review your current practice and ensure that everyone is fully aware of your policies and procedures. We have provided suggested questions for the leader/childminder, staff and parents. You may choose to use all of these or just one or two sections, depending on your provision and how confident you feel about your policies and procedures. You can use the questions as individual questionnaires or use them informally to stimulate discussions with staff and parents etc.

When you answer these questions, don't just answer yes or no – think about the question and ask yourself:

- How do I know?
- What is my evidence and where is it?
- Is that always the case?
- Is that true of everyone using the provision?

The column for ***“how could we make it even better”*** on each question is best completed by the whole team or by the childminder. This becomes part of the development plan for your provision so it's important that it is carefully thought about and completed by the person/people who will be responsible for carrying it out.

Consider if it would also be helpful to ask parents and children for their views and feedback to your provision, and how you might respond to this.

### Questions to support reflection

Planning and reviewing		
<p><b>When did you last audit junk modelling resources?</b> For instance you could make sure you always have a good supply of interesting materials in stock. Making sure you replenish with appealing things.</p>	<p><b>Do you plan for junk modelling?</b> For instance your observations may reveal that you need to provide more large cartons so children can physically get inside them or some children may also like to paint their finished creation.</p>	<p><b>How could we make it even better?</b></p>
Do the resources you provide give opportunities for exploration in all areas of learning?		
<p><b>Do you encourage children to bring things they may have saved from home?</b> Children may have had an idea at home or been inspired by something that was available to them. Or they could just save random things to add to the collection at the setting.</p>	<p><b>Are there enough resources relevant to children's interests?</b> Do you keep a variety of basic recycled things along with more unusual things? Do you ensure that the most popular sized boxes are in 'stock' Do you allow children to make free choices? If vehicles such as fire engines, trains, tractors are in demand do you make sure supplies of resources meet this demand?</p>	<p><b>How could we make it even better?</b></p>

<b>Is there a good balance of child initiated and adult initiated available</b>		
<b>Is the level of adult interaction appropriate?</b> Are adults on hand to support activities, do they allow children to achieve their ideas, do they encourage 'no finished' product' approach? And that a model does not have to be anything in particular?	<b>How do you enable children to initiate their own activities?</b> For example ensure that you are tuned into children's interests, listen to their ideas and their conversations with each other. Try to act upon them by providing the necessary resources.	<b>How could we make it even better?</b>
<b><i>Do you watch and listen to children playing with the resources and use your observations to extend the activity?</i></b>		
<b>Do you differentiate between age groups and ages and stages of development?</b> For example you could make sure that you have lengths of fabric and large cartons for very young children to play with. Intelligent materials all support schematic play, for example enclosure, enveloping, connecting.	<b>Are you aware of how children play?</b> For example is their play solitary, co-operative or parallel. Making large models is a good way to encourage group play and social skills.	<b>How could we make it even better?</b>
<b><i>Do you encourage children to add their own ideas for resources?</i></b>		
<b>Do adults discourage children from using intelligent materials because it's too much bother to save them?</b> Let children bring things from home, value what they turn up with. All sorts of things can be 'treasured' if adults are receptive to saving them.	<b>Do you give consideration to the task of tidying away equipment and resources?</b> For instance tidy up time can be a time for sorting and classifying. Try to ensure that everything is kept in an orderly way. Children will not be inspired by a bin liner full of bashed & broken boxes or random bits & pieces.	<b>How could we make it even better?</b>

<b><i>Are children able to explore the materials individually, in small groups and in larger groups?</i></b>		
<b>Do children interact and work together towards a common goal?</b> Do they share resources and discuss what they are doing and make plans.?	<b>Are there always enough resources for children to follow their own lines of play?</b> Are there enough materials to go round? Do you replace and replenish where possible? Do you go out of your way to access things that you think children would enjoy using?	<b>How could we do it even better?</b>

### **Ofsted self-evaluation form**

*Links to Part B, section 4. Work in partnership with parents and carers to support each child's learning, in and out of the provision. Activities encourage children to play and explore, be active in their learning and think creatively and critically. Practitioners adapt activities, resources and routines to match the observations they make of the children.*