Age-appropriate pedagogies

Aligning curriculum, pedagogies and assessment, an example of practice in Prep

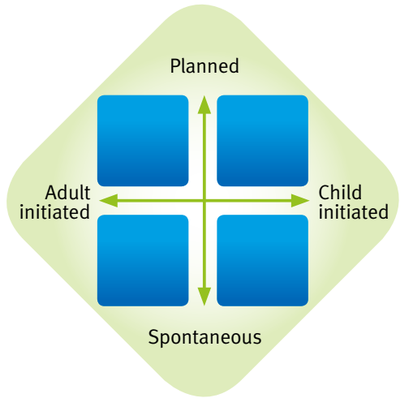
Event-based approach - 'Why are there bees in Prep?'

Technologies - Digital Technologies

Sequencing teaching and learning

How do I teach it?

Achieving range and balance*



Approach

- Event-based approach

Practices

- Evoke young learners' interests and experiences
- Guide careful planning, preparation and rehearsal
- Encourage young learners to exercise agency throughout

Strategies

- Direct and/or stage-manage only when required
- Model context-specific language and behaviour
- Use questioning to extend and challenge young learners' thinking and promote problem-solving
- Scaffold young learners' designs and plans

Characteristics of age-appropriate pedagogies*

- **Active**
- **Agentic**
- Collaborative
- Creative
- Explicit
- **Language rich and dialogic**
- Learner focused
- Narrative
- **Playful**
- Responsive
- **Scaffolded**

**See over for an explanation of approaches, practices and strategies, and the characteristics of age-appropriate pedagogies evident in this Example of practice.*

Our students

Working together to ensure that every day, in every classroom, every student is learning and achieving

This is an example of how one teacher incorporated an event-based approach while implementing the Australian Curriculum: Digital Technologies.

In Term Four, the Prep teacher identified young learners' attempts to explain robotic toys to their families as an opportunity for focused engagement with Digital Technologies.

The Deputy Principal (at the prompting of the Prep teacher), emailed the class informing them that some of their families had been asking, 'Why are there bees in Prep?' and that she was unsure how to answer.

The young learners decided that they would have to teach their families about Bee-Bots. They needed to let their families know that Bee-Bots were robotic toys. There were no bees in Prep! The Deputy's question was the catalyst for planning Bee-Bot tutorials and a Bee-Bot workshop for families.

As a first step, drawing on their personal knowledge, the young learners discussed some of the ways their family members learnt to do new things at home. Many identified online tutorials as a great source of 'how-to' information.

It was subsequently decided that each young learner would create a Bee-Bot tutorial for their family. The tutorial would inform family members that Bee-Bots were robotic toys and teach them how to program a Bee-Bot with a series of steps to solve a simple problem. This Bee-Bot tutorial would be emailed home for viewing as prior learning for family members who could then attend a Bee-Bot workshop at school.

Each young learner was supported by the teacher and teacher aide to carefully script and produce their Bee-Bot tutorial with a focus on context-specific language and behaviour.

On the day of the Bee-Bot workshop, family members were invited into the classroom to engage in a number of Bee-Bot learning experiences. As agentic young learners, the students positioned themselves as the experts.

The teacher guided the rehearsal of each Bee-Bot tutorial, and the planning and preparation of the Bee-Bot workshop in collaboration with the young learners.

This event-based approach enabled the young learners to build connections between their home and classroom experiences.

Assessment

What do my students already know? How well do they know it?

Assessment **for learning** - Bee-Bot tutorial videos focused on describing the purpose and use of Bee-Bots, anecdotal observations and photographic documentation of the Bee-Bot workshop
Assessment **as learning** - Self and peer assessment of tutorials using a negotiated checklist devised by the young learners focused on describing and representing a sequence of steps to control the Bee-Bot
Assessment **of learning** - There was no summative assessment task attached to this event-based approach

Making judgments

How will I know how well my students have demonstrated the Achievement Standard?

Although there was no summative assessment task attached to this event-based approach, by monitoring learning through the use of assessment **for** and **as** learning, and providing feedback, decisions could be made by the teacher relating to:

- what was known and understood
- strengths, misconceptions and misunderstandings that were evident
- the next steps for learning.

Young learners' responses to summative assessment tasks across the Prep to Year 2 Digital Technologies band level contributed to their assessment folio, providing evidence of their learning. The assessment folio included a range and balance of assessments to make valid judgments about whether the young learners had met the achievement standard.

Feedback

What do my students already know?
What do my students need to learn next?

The teacher used the Bee-Bot tutorial videos, anecdotal observations and photographic documentation of the Bee-Bot workshop to inform feedback. The feedback provided the young learners with progress on their learning to date (Bonnie, I noticed that your Bee-Bot made a number of moves before your planned sequence of steps began), and gave specific information about what to do next (Remember, to cancel the previous program, you need to press the cancel button. Then you can program your new sequence of steps).

Ongoing informal verbal feedback was embedded in classroom activities throughout this event-based approach.

Curriculum intent

What do my students need to learn?

Australian Curriculum – Digital Technologies

Foundation (Prep) to Year 2 Band Description

Learning in Digital Technologies builds on concepts, skills and processes developed in the Early Years Learning Framework. It focuses on developing foundational skills in computational thinking and an awareness of personal experiences using digital systems.

By the end of Year 2, students will have had opportunities to create a range of digital solutions through guided play and integrated learning, such as using robotic toys to navigate a map or recording science data with software applications.

In Foundation – Year 2, students begin to learn about common digital systems and patterns that exist within data they collect. Students organise, manipulate and present this data, including numerical, categorical, text, image, audio and video data, in creative ways to create meaning.

Students use the concept of abstraction when defining problems, to identify the most important information, such as the significant steps involved in making a sandwich. They begin to develop their design skills by conceptualising algorithms as a sequence of steps for carrying out instructions, such as identifying steps in a process or controlling robotic devices.

Students describe how information systems meet information, communication and/or recreational needs.

Through discussion with teachers, students learn to apply safe and ethical practices to protect themselves and others as they interact online for learning and communicating.

Foundation (Prep) to Year 2 Content Descriptions (as applicable to this event-based approach)

Digital Technologies Knowledge and understanding

- **Recognise and explore digital systems (hardware and software components) for a purpose (ACTDIK001)**

Digital Technologies Processes and Production Skills

- **Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (ACTDIP004)**
- **Explore how people safely use common information systems to meet information, communication and recreation needs (ACTDIP005)**
- **Create and organise ideas and information using information systems independently and with others, and share these with known people in safe online environments (ACTDIP006)**

Foundation (Prep) to Year 2 Achievement Standard – Digital Technologies

By the end of Year 2, students identify how common digital systems (hardware and software) are used to meet specific purposes. They use digital systems to represent simple patterns in data in different ways.

Students design solutions to simple problems using a sequence of steps and decisions. They collect familiar data and display them to convey meaning. **They create and organise ideas and information using information systems, and share information in safe online environments.**

Characteristics of age-appropriate pedagogies evident in this example of practice

This event-based approach was planned in response to young learners' enthusiastic engagement with digital technologies, specifically Bee-Bots. The young learners were empowered to feel that they knew something that their families didn't and this stimulated active engagement and positioned them as experts. The experiences were language rich and dialogic with digital technology-rich conversations about what the families already knew and needed to learn. The teachers scaffolded the young learners by providing examples of tutorials and in co-planning workshop learning experiences for the families.

Although only five of the characteristics of age-appropriate pedagogies have been highlighted here, there were opportunities to embed each of the eleven characteristics.

Characteristics of age-appropriate pedagogies

Active
Requiring physical and embodied engagement across all areas of learning. Whether this is indoors or outdoors, activity is essential in order to activate children's full potential. Their focus, concentration, motivation and self-regulation are enhanced through moving, doing and interacting within a range of learning environments.

Agentic
Ensuring that children have voice in their learning. Their ideas and interests initiate, support and extend learning possibilities in order to build on their real-world understandings and experiences.

Collaborative
Being social and co-constructed. Children and educators work together to identify ways of learning and understanding through sustained shared thinking and action.

Creative
Inviting children to consider "What if?" They encourage investigation, inquiry and artistry to explore new possibilities and ways of thinking.

Explicit
Making conscious for both learner and educator the relationships between the learning purpose and processes employed and the skills and understanding these processes support.

Language rich and dialogic
Ensuring that learning occurs in environments where rich language is modelled and employed by both children and educators. Meaningful dialogues between children, as well as between children and educators, are created to support thinking, learning, engagement and imagination.

Learner focused
Recognising that all children learn in different ways and that learning is a highly individualised process. They also acknowledge differences in children's physical, intellectual, cultural, social and personal experiences and perspectives.

Narrative
Acknowledging the important role that personal, written, oral and digital stories play in all our lives. They support both the production and comprehension of narratives through active processes, especially play.

Playful
Encouraging children to make connections through imagination and creativity to explore alternate worlds and ways of thinking. These worlds, not bounded by reality, offer the freedom children need to innovate and enact new possibilities.

Responsive
Incorporating a willingness to be flexible, to ensure that learning is always child, context, content and discipline appropriate. To achieve this, educators will balance opportunities for structure and spontaneity, open-ended and specific tasks, and child-led and educator-led learning.

Scaffolded
Including such actions as modelling, encouraging, questioning, adding challenges, and giving feedback, provide the support needed to extend children's existing capabilities. Effective scaffolding by both educators and other children provides active structures to support new learning; it is then progressively withdrawn as learners gain increasing mastery.

Approach - Project approach

Practices*

Evoke young learners' interests and experiences
The teacher recognised that the young learners' interest in Bee-Bots was building and spreading beyond the classroom. Their enthusiasm provided the perfect opportunity to discuss a range of information systems that support personal needs (e.g. online tutorials), and share ideas through video and email.

Guide careful planning, preparation and rehearsal
The teacher guided careful planning about how the Bee-Bot workshop would be staged and what would be required. Consideration was given to the timing and length of the event, as well as access to a finite number of resources across the school. Guest lists were drawn up, invitations collaboratively created and roles and responsibilities of the Bee-Bot experts negotiated and rehearsed.

Encourage young learners to exercise agency throughout
The young learners' opinions were sought and valued throughout the planning of the Bee-Bot workshop. The class came together to brainstorm, plan, prioritise, problem solve, vote, negotiate, compromise, reach agreement and collaborate. Individually, each young learner was able to ask questions, express their ideas, follow a plan through to fruition, and experience learning through persistence and perseverance when faced with challenge.

Strategies*

Direct and/or stage-manage only when required
Encouraging young learners to make decisions and choices throughout the duration of this event-based approach promoted independence and agency. Resources and materials were readily available and accessible, the physical environment allowed for cooperative and collaborative learning, and prolonged periods of time were scheduled to allow for deeper engagement. The teacher supported young learners in developing their decision-making skills, in recognising available options, and to understand the responsibilities and outcomes associated with particular choices.

Model context-specific language and behaviour
The teacher modelled the language of direction and location, as well as the language of programming e.g. left, right, cancel, forward, turn, move, pause, repeat and cancel. This language was central to experimenting with very simple, step-by-step procedures and providing instructions to move a robotic toy in an intended manner.

Use questioning to extend and challenge young learners' thinking and promote problem-solving
Questioning was particularly important to extend and challenge the young learners during the planning for each learner's Bee-Bot tutorial. The teacher set aside 'thinking time', encouraged the children to journal their Bee-Bot tutorial ideas, and set up a 'question board' in the classroom (e.g. How can we...? I wonder...? What will happen if...?). Asking thought-provoking questions encouraged the young learners to use higher-level thinking skills including prediction, inference and interpretation.

Scaffold young learners' designs and plans
By carefully considering the social, temporal and physical environment the teacher was able to purposefully foster high-quality exchanges with and between the young learners that scaffolded their designs and plans. The teacher used real life examples of online 'how to' tutorials and explored the characteristics of these. The 'I do, We do, You do' model was used in preparing scripts. The use of self, peer and teacher feedback was evident (e.g. rate your tutorial, rehearse with a buddy, conference with your teacher).

Questions for teacher-based reflection
- How is an array of effective pedagogies ensured?
- How are holistic development and academic goals balanced?
- How is a balance between child-initiated and adult-initiated learning experiences fostered?
- How are positive personal relationships with children nurtured?
- How is playfulness in learning and teaching interactions embedded?
- How are high-quality, verbal interactions encouraged?
- How are interactions to scaffold cognitive challenge and develop higher order thinking incorporated?
- How are real-life, imaginary, spontaneous and planned experiences integrated?

Questions for school-based reflection
- How is the provision of training, resources and support considered?
- How are the professional demands on teachers, and the lead-in time required to establish new approaches, recognised and supported?

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