



COGNITIVE / DEVELOPMENTAL GOALS

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Introduction

The individual VIRRY IVODs [approximately five per animal] present young children with fun and engaging interactions with wild animals, such as lions, giraffes, meerkats, and rhinos. With the fun, however, the goal is that children experience cognitive, emotional, and social benefits, designed to meet the educational and developmental needs of young children. For example, children are learning to self-regulate arousal (i.e., getting excited and then quieting themselves down), to pay attention to details, and to master concepts of comparison and contrast (i.e., more versus less; bigger versus smaller; faster versus slower). Importantly, they are learning how they, as humans, are different from and sometimes similar to specific animals. These exercises in comparing themselves to other species train perspective taking and empathy, two related foundational skills underlying emotional and social understanding. Along with these skills, VIRRY IVODs communicate many facts about these wild animals, and emphasise animal welfare and conservation needs. The virtual ability to help animals by, for example, feeding them or giving them water, help develop in children a sense of self-efficacy and competence, while emphasising ideas of appropriate helping and nurturing.

You will notice that throughout the various VIRRY IVOD activities, the general themes we have noted reappear and are reinforced. Repetition, practise, and positive reinforcement – all within a game like, friendly social exchange – have been shown to be the most optimal pedagogical context for young children. In addition, young children learn best by engaging the senses. We have built in visual, auditory, and motor, and even haptic sensory experiences. Finally, the best educational and developmental outcomes for children occur when they can *actively* engage in mastery experiences. In each IVOD activity, the child makes choices, gets feedback, and acts to make things happen. For example, a child can shake the ipad up or down to “feed” an animal. In another example, the child can shout to the animal to come over and have a drink, or can skip the shout. In general, the app draws on best practises in teaching methods for young children to structure the themes incorporated within the IVODs. In the following sections, each IVOD is described, and the specific educational and developmental benefits of each component of the IVOD are identified.



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VIRRY GIRAFFE IVODs

Activity or component

Educational/developmental objectives

How tall is giraffe?

Understanding size comparisons; comparing across species; animal fact

What do giraffes eat?

Animal fact

Give giraffe plants to eat

Nurturing through appropriate care; following directions

Shake ipad once up

Coordination and impulse inhibition (just shake once)

How much time eating?

Understanding time concepts; contrast with humans; perspective taking

“They need a lot of food because they’re so big”

Inferential reasoning

Shake UP to feed

Coordination and impulse control

SALT

Compare what salt people vs. giraffes eat

Animal fact; contrast human (self) and other animal; perspective taking

Shout: Giraffes! Salt time!

Self-efficacy (making things happen); follow instructions; impulse control

DRINK

Giraffes are tall

Reasoning: being tall has positive function, but negative as well. Problem solving skills

Put water in pond; switch on pump

2-step process, with if-then problem solving.

Shake ipad 5 times

Counting and impulse control (just 5 times no more)

Wait until water is full

Delay gratification by waiting for outcome

Shout: “Water’s ready”

Feeling of communication with animal; nurturing by giving drink; self-efficacy; self-regulation by inhibiting shouting once animal starts drinking

“They’re having a nice drink because you filled the pond”

Speaker reinforces efficacy and nurturance

LEAVES

How do giraffes pick off leaves?

Animal fact; contrast to humans; perspective taking

Shake ipad to give leaves

Efficacy; virtual feeding as caregiving experience

How long a tongue?

Animal fact; size comparison

In zoos or out?

More vs. less reasoning; animal welfare and conservation issue



VIRRY LION IVODs

Activity or component

Educational/developmental objectives

FOOD

What do you like to eat?
What does Limun like to eat?

Perspective taking; human-animal contrast

Give her raw meat

Nurturing by feeding; following specific instructions; self-efficacy; multi-sensory experience through haptic feedback

How much meat does lion eat?

Number comparison

Shake ipad to feed again

Repeats and reinforces nurturing, self-efficacy and sensory feedback

PLAY

How do people play with a ball?
How does Limun play?

Perspective-taking; human-animal contrast

Shake ipad and chicken drops down

Nurturing by feeding; sense of communication with animal

CLIMB

If Lulu has a race who wins?

Person vs. lion comparison

Who can climb tree faster?

Inferential reasoning; faster climbing because sharp claws

Shake ipad to hang chicken from post; see Limun climb

Nurturing through feeding; sense of efficacy

Repeat activity

Reinforcing experience

Shout: Limun! More chicken!

FSelf-regulation (shout and then subside); sense of communication with animal

SLEEP

"Pride" is family. Boy lion has mane

Animal facts. Noticing differences

How many hours sleep/rest

Amount comparison (more vs. less)

Shake and shout; then hold still

Self-regulation of arousal. Increasing from 15 secs. To 30 secs

Where do lions live?

Animal facts; more vs. less distinction; conservation and animal protection issues



VIRRY MEERKATS IVODs

Activity or component

Educational/developmental objectives

Family of animals

Understanding social relations; animal-human comparisons

FOOD

Child's preference then meerkat preference

Perspective taking; Empathy (worms can be yummy for others)

Give them worms; tilt ipad down

Nurturing through feeding; motor control; following specific directions; engaging the senses through haptic feedback

EXPLORE

Understand animal habitat

Learning about animals

Why is meerkat standing up?

Understanding functions of animal behaviour

Where does the hole go to?

Reasoning about animal habitat

How many meerkats in a family?

Family size and number comparisons; animal-human contrast

WHITE EGG

What do people eat?

Perspective taking; here, animal-human similarity

What does meerkat eat?

Feed an egg by shaking ipad

Motor control; nurturing through feeding; sense of animal communication

How do they know how to eat a scorpion?

Idea of parent teaching child; similarity to self and humans

BLACK EGG

People get a present vs. meerkats get a present

Animal-human comparison

Meerkats sniff and retreat; child shouts "There's insects inside egg!"

Theory of mind; sense of animal communication; self-efficacy

PETS

Good idea or no?
Meerkat not a pet

Teaching difference between wild and pet animals; animal welfare and protection themes



VIRRY RHINO IVODs

Activity or component

Educational/developmental objectives

MUD POOL

Introduce baby rhino

Teaching developmental change from baby to adult

How long inside mom

Animal-human contrast; time comparison

Shake ipad to start water pump;
then make mud bath; then shout
"Mud time"

Planning skill through 2-step process; helping and
nurturing animal; sense of animal communication

FOOD

How heavy is Ra's mom?

People vs animal comparison; understanding weight
differences

"If Ra's mom is so big, she must
eat a lot of food"

Inferential reasoning (if-then)

What kind of food?

Animal fact

Give them grass by shaking ipad down

Follow directions; motor control; nurturing animal by
feeding

Give grass pellets by shaking ipad down

Reinforcing and practising directions, motor control
and nurturing behaviours

RUN

Are rhinos fast?

Person vs. rhino contrast

Help rhino run; shake ipad 5x

Helping animal; specific instructions; motor control

Hold still ipad so rhino can
rest (10 secs.)

Inhibit motor activity to enhance self-regulation;
follow specific instructions; self-efficacy

Repeat: shake to run; still to rest

Reinforcement through practise

Repeat again: shake to run; still to rest

Added practise

COOL OFF

Ra has no horn; mom has horn

Notice differences; understand idea of developmental
change (i.e., Ra will have horn)

What is horn made of?

Animal fact; understand animal-human similarity

Some people try to steal horns

Idea of animal welfare and protection

They are hot, to cool off...

Inferential reasoning

Use pump to fill pond, then tell Ra

Executive planning through 2-step process;
helping animal

How many rhinos?

More vs less comparison; animal conservation issue