

ACTIVITY

GUIDE

GRIPABLE

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BALLOON BUDDIES

- **Requirements:** Grip & release/Wrist extension & flexion /Wrist radial & ulnar deviation
- **Encourages:** Control in grip and release, endurance or strength

This activity targets controlled grip and release or movements, as listed above. The goal is for the user to control the owl which is suspended from the balloon. The owl needs to collect all the stars to gain points.

Grip / release: Squeezing GripAble inflates the balloon to make the owl go up the screen. Releasing GripAble brings the owl down the screen.

Wrist extension/ flexion: Extension of GripAble moves the owl up the screen and flexion moves the owl down the screen.

Wrist radial / Ulnar deviation: Radial deviation of GripAble moves the owl up the screen and ulnar deviation moves the owl down the screen.

The levels give increased time and complexity of control required. The emphasis is on smooth transition between grip and release or movements. The placement and the smoothness of the curve of stars alters through the levels to give gradual increase in demand.

The “Next” button can be triggered by squeezing GripAble or using the touch screen.

Level 1

52 seconds. 30 stars.
Smooth transition (sine wave pattern)

Level 2

52 seconds. 30 stars.
Sharp transition (triangular pattern)

Level 3

52 seconds. 30 stars.
Smooth sustains (sine plateau wave pattern)

Level 4

52 seconds. 30 stars.
Sharp sustains (plateaus pattern)

Level 5

52 seconds. 30 stars.
Irregular transition.

Level 6

66 seconds. 40 stars. 3 block obstacles.
Smooth transition (sine wave pattern).

Level 7

66 seconds. 40 stars. 6 block obstacles.
Sharp transition (triangular pattern)

Level 8	66 seconds. 40 stars. 6 block obstacles. Smooth sustains (sine plateau pattern).
Level 9	66 seconds. 40 stars. 6 block obstacles. Sharp sustains (plateaus pattern).
Level 10	66 seconds. 40 stars. 5 block obstacles & 2 spiked obstacles. Irregular transition.
Level 11	66 seconds. 50 stars. 8 block obstacles. Smooth transition (sine wave pattern)
Level 12	66 seconds. 50 stars. 8 block obstacles. Sharp transition (triangular pattern)
Level 13	66 seconds. 50 stars. 5 block & 3 spiked obstacles. Smooth sustains (sine plateau wave pattern)
Level 14	66 seconds. 50 stars. 6 block & 3 spiked obstacles. Sharp sustains (plateaus pattern)
Level 15	66 seconds. 50 stars. 7 block & 3 spiked obstacles. Irregular transition
Level 16	78 seconds. 60 stars. 16 block & 3 spiked obstacles. Smooth transition (sine wave pattern)
Level 17	78 seconds. 60 stars. 17 block & 4 spiked obstacles. Sharp transition (triangular pattern)
Level 18	78 seconds. 60 stars. 17 block & 9 spiked obstacles. Smooth sustains (sine plateau wave pattern)
Level 19	78 seconds. 60 stars. 17 block & 9 spiked obstacles. Sharp sustains (plateaus pattern)
Level 20	78 seconds. 60 stars. 17 block & 9 spiked obstacles. Irregular transition

CIRCUS ESCAPE

- **Requirements:** Grip and release
- **Encourages:** Control and fast reaction in grip and release, endurance.

This activity targets controlled and fast reaction in grip and release. The goal is for the user to power the bear on the cycle along the course without falling off the cliff. The user will need to squeeze with more intensity and harder as the cycle moves up hills. The levels increase in complexity and length as they progress. There is a natural break within each level as the user waits for the hazards to reach the point of safe movement however, this is a very intensive activity with a minimum of about 40 grip/release cycles on level 1 and 140 grip/release cycles on level 10.

The "Next" button can be triggered by squeezing GripAble or using the touch screen.

The time taken to complete each level depends on the speed the cycle is powered as well as the length of the course.

Level 1	Straight course with no hazards
Level 2	Two blue, horizontal, hazards
Level 3	Three yellow, vertical, hazards
Level 4	Two blue and two yellow hazards
Level 5	Three blue and four yellow hazards
Level 6	Three pink, circular, two blue and one yellow hazard
Level 7	Three launch ramps, three blue, two yellow and two pink hazards
Level 8	Three yellow, two blue and one pink hazard
Level 9	Three launch ramps, three yellow, two blue and two pink hazards
Level 10	Four pink and four yellow, three launch ramps and one blue hazard

CONCIERGE

- **Requirements:** There are two versions of Concierge
 - Wrist extension / flexion and Grip / release
 - Wrist radial / ulnar deviation and Grip / release
- **Encourages:** end of range wrist extension and flexion or radial and ulnar deviation, control of movement with recruitment of grip, planning and decision making

Extension/ flexion and grip/ release: In this activity the concierge in the hotel lift/ elevator is controlled by moving the wrist into extension and flexion. Extension for up. Flexion for down. The lift/elevator door is opened using grip.

Radial/ ulnar deviation and grip/ release: In this activity the concierge in the hotel lift/elevator is controlled by moving the wrist into radial and ulnar deviation. Radial deviation for up. Ulnar deviation for down. The lift/elevator door is opened using grip.

The job of the concierge is to take the lift/elevator to the floor where someone needs to enter the lift/elevator or a service needs to be collected – always from the left and make the delivery on the right. All services and people need to be delivered during the day shift and only one delivery can be made at a time. Time is indicated by the sun rising on the left and setting on the right.

This activity requires high levels of cognition promoting decision making, planning, sequencing, mathematics and hand-eye coordination.

Level 1	Two hotel storeys. Four “green” people
Level 2	Three hotel storeys. Six “green” people
Level 3	Three hotel storeys. Five “green” people and eight pizzas
Level 4	Four hotel storeys. Five “green” people and eight pizzas
Level 5	Four hotel storeys. Five “green” people, three pizza deliveries and four housekeepers to clean
Level 6	Five hotel storeys. Six “green” people, four pizza deliveries and four housekeepers to clean
Level 7	Six hotel storeys. Five “green” people, five pizza deliveries, four housekeepers to clean and one VIP landing by helicopter on the roof to take to their room
Level 8	Six hotel storeys. Six “green” people, five pizza deliveries, three housekeepers to clean and one VIP landing by helicopter on the roof to take to their room

Level 9

Six hotel storeys. Six “green” people, three pizza deliveries, seven housekeepers to clean, two drinks to deliver and one VIP landing by helicopter on the roof to take to their room

Level 10

Seven hotel storeys. Six “green” people, five pizza deliveries and four housekeepers to clean, five drinks to deliver and two VIPs landing by helicopter on the roof to take to their room

Additionally, each type of delivery is worth differing “tips” and therefore a further therapeutic extension of the activity is to include the problem solving when prioritising which service / person to deliver first.

- **Green Person:** Take to room Worth £4.60 each
- **Pizza:** Deliver room service Worth £2.40 each
- **Bucket:** Roomkeepers to clean Worth £3.20 each
- **Blue Person:** VIP to take to room Worth £9.20 each
- **Drink:** Deliver drinks room service Worth £8.50
- **Deliveries to VIP rooms:** Worth a double tip

FOUR IN A ROW

- **Requirements:** Pronation/ Supination and Grip/Release
- **Encourages:** Controlled movement through range recruiting grip when steady

In this activity, movement of GripAble through pronation and supination moves the counter left to right and a squeeze drops the counter into the chosen lane. This is the classic four-in-a-row activity where two players compete to drop four counters in a row vertically, horizontally or diagonally. When it is the other players turn, it will say so.

When entering the activity there are two options: playing against the AI computer or playing against any other GripAble user who is in the “players lobby”. If there are no live players, the app will tell you.

Option 1

Play against the computer choosing easy, medium or hard. This activity can be repeated and the difficulty level altered to suit

Option 2

Play against another live player. Select the player you wish to challenge. They will be sent a notification. Once they accept your challenge, you will meet online. You have the choice whether to mute your device or not. Use the button in the bottom left corner to toggle on and off the sound. At the end of your game, you will be taken back to the players lobby.

LITTLE ROCKET

- **Requirements:** Pronation/ Supination
- **Encourages:** Range of movement through pronation and supination

In this activity, you navigate right and left across the screen avoiding being hit. The shooting is automatic. As each level progresses, the enemy ships become more complex. There are 20 levels plus an arcade level. Arcade level is continuous so each time you play, you can try to improve your score. Stay playing until you lose all your lives. See detail below:

Level 1	Introduce Strafers which move horizontally. No special effects
Level 2	More Strafers
Level 3	Introduce Divers which dive down vertically
Level 4	Strafers and Divers
Level 5	BONUS ROUND
Level 6	More Strafers and Divers
Level 7	Even more Strafers and Divers
Level 8	Introduce Darters which lock on the player and then shoot towards them in a straight line
Level 9	Strafers, Divers and Darters
Level 10	STRAFER BOSS BATTLE
Level 11	More Strafers, Divers and Darters
Level 12	Introduce Slalomers which move down following a wavy line
Level 13	Strafers, Divers, Darters and Slalomers

Level 14	More Strafers, Divers, Darters and Slalomers
Level 15	BONUS ROUND
Level 16	Even more Strafers, Divers, Darters and Slalomers
Level 17	Introduce Loopers which move towards the player while moving in circles, creating a spiralling motion
Level 18	Strafers, Divers, Darters, Slalomers and Loopers
Level 19	More Strafers, Divers, Darters, Slalomers and Loopers
Level 20	DIVER BOSS BATTLE

Each level introduces new enemy formation patterns, with the patterns themselves getting bigger and resembling crazier shapes as the levels increase. On all regular levels (i.e. not bonus or boss) a small percentage of the enemies have guns (regardless of the enemy type). The only exception to this rule are levels where a new enemy is introduced (like 1, 3, 8, etc.).

Bonus rounds (5 and 15) are special levels where enemies move following weird trajectories but don't shoot or attack the player, the goal is to just shoot them all down and get as many points as possible.

Boss battles (10 and 20) are against a boss version of a certain enemy (strafer on 10, diver on 20). The boss is initially huge and takes several hits to explode. When it does explode, it splits into smaller bosses and also gives birth to enemies of the same type with guns.

Arcade Mode is the endless mode that mixes together all the waves and levels of the 20 regular levels of the game and repeats them all over again indefinitely. As an additional challenge (and in order not to make this endless mode actually endless) on every new wave the enemies speed up ever so slightly.

There's also a bonus UFO that appears on every level when the x10 combo is reached. This doesn't attack, it just flies through the screen very quickly and

PIGEON HUNTER

- **Requirements:** Grip and release
- **Encourages:** Strength training through repeated squeezes

In this activity a squeeze draws the arrow and a release lets it go. The aim is to protect the famous worldwide monuments from the pigeons who fly above and poop on them. Each type of pigeon requires a different number of shots to destroy it. The activity requires repeated squeezes and control of release in time with a flying bird. As soon as the archer and his trajectory are seen, the activity is ready to start.

Level 1

New York

Twelve small grey pigeons – each needs to be struck once

Level 2

Sydney:

Nine small grey pigeons

Level 3

Petra:

Twenty small grey pigeons

Level 4

Paris:

Fifteen small grey pigeons and one small orange pigeon which needs to be struck twice

Level 5

Easter Island:

Ten small grey pigeons, one small orange pigeon and one large orange pigeon which needs to be struck three times

Level 6

London:

Twenty two pigeons. Twenty small grey, one large orange and a dark grey with yellow head in a box – this one needs four strikes

Level 7

Giza:

Twenty two pigeons. Twenty small grey, one large orange and a dark grey with yellow head in a box – this one needs four strikes

Level 8

Rome:

Twelve pigeons. Ten small grey and two dark greys with yellow head

Level 9

Singapore:

Twenty six pigeons. Twenty three small grey, two dark greys with yellow heads and one large metallic grey – this one needs five strikes

Level 10

Moon:

Twenty pigeons. Eighteen small grey and two large metallic grey

PIXELATE

- **Requirements:** Grip and release
- **Encourages:** Grip or release of grip with minimal cognitive requirements and

high reward

This activity aims to encourage grip and release. The user can choose whether the therapeutic emphasis is on grip or release. The release option is specifically intended for people with high tone. Each full grip or each full release (depending upon which is chosen) will reveal a picture. The percentage of grip/release achieved is displayed in the top right-hand corner alongside a bar which fills, to encourage the full movement. If there is a delay in user movement, the screen will prompt the user to continue.

Level 1

7 pictures.

Iconic places around the world

Level 2

10 pictures.

Nature scenes

Level 3

12 pictures.

Animals

Level 4

15 pictures.

Plants

Level 5

17 pictures.

Animals

Level 6

20 pictures.

Monuments

Level 7

22 pictures.

Animals

Level 8

25 pictures.

Food - savoury

Level 9

27 pictures.

Landscapes

Level 10

30 pictures.

Food - sweet

To work through all the levels takes 185 grip and releases plus extras to move from one level to another.

PLUME

- **Requirements:** There are three versions of Plume

- Wrist flexion / extension
- Wrist radial / ulnar deviation
- Grip / release

- **Encourages:** Controlled wrist flexion and extension, radial and ulnar deviation or grip and release

Wrist extension/ flexion: In this activity, the user is controlling the bird as it flies along a course using wrist flexion to move downwards and wrist extension to move upwards.

Wrist radial/ulnar deviation: In this activity, the user is controlling the bird as it flies along a course using wrist ulnar deviation to move downwards and wrist radial deviation to move upwards.

Grip/ release: In this activity, the user is controlling the bird as it flies along a course using release to move downwards and grip to move upwards.

High level of visual perception and concentration required. The time taken increases as the user works through the levels.

Level 1

Number of feathers to collect: 4

Level 2

Number of feathers: 5

Level 3

Number of feathers: 9

Level 4

Number of feathers: 10 with the addition of hazards to avoid

Level 5

Number of feathers: 16

Level 6

Number of feathers: 14 with increased hazards

Level 7

Number of feathers: 18

Level 8

Number of feathers: 23

Level 9

Number of feathers 28

Level 10

Number of feathers 33

PUFFERFISH

- **Requirements:** There are two versions of Pufferfish available
 - Wrist radial and ulnar deviation, optional grip and release (becomes increasingly needed through the levels)
 - Wrist extension and flexion, optional grip and release (becomes increasingly needed through the levels)
- **Encourages:** Controlled wrist radial and ulnar deviation. Combined use of movement and power

Wrist radial/ ulnar deviation: In this activity the user is controlling the fish to move up and down the screen by moving GripAble through wrist radial and ulnar deviation.

Wrist extension/ flexion: In this activity the user is controlling the fish to move up and down the screen by moving GripAble through extension and flexion.

The fish needs to catch the bubbles. In Level 3 onwards, hazards appear which need to be avoided or, by squeezing, they can be blown away. Note that the fish will not be affected by swimming over the sandy area at the base of the screen.

There are twenty levels which gradually increase in complexity.

	Time of activity	Number of bubbles	
Level 1	22 sec	18	No hazard
Level 2	34 sec	25	No hazard
Level 3	30 sec	15	Hazard added = cans
Level 4	38 sec	18	Hazard added = tyres
Level 5	38 sec	19	Hazard added = boots
Level 6	42 sec	23	
Level 7	45 sec	25	
Level 8	54 sec	25	
Level 9	50 sec	28	Hazard added = fish hook lure
Level 10	56 sec	23	
Level 11	63 sec	37	Hazard added = lady fish
Level 12	54 sec	34	
Level 13	68 sec	55	Hazard added = number plate
Level 14	71 sec	60	
Level 15	68 sec	42	Hazard added = motor
Level 16	74 sec	47	
Level 17	78 sec	41	Hazard added = octopi
Level 18	81 sec	43	
Level 19	84 sec	48	Hazard added = sharks
Level 20	89 sec	64	

REP COUNTER

- **Requirements:** Can be used independently with grip/release and all three movements, pronation/supination, extension/flexion and ulnar/radial deviation
- **Encourages:** End to end use of the selected movement without gamification
End to end use of the selected movement without gamification
 - Grip/Release
 - Pronation/supination
 - Radial/ulnar deviation
 - Extension/flexion

Then select the number of repetitions desired. Choose whether sound is wanted or not. This can be changed mid-activity. When the desired repetitions have been achieved, the activity will stop. "Restart" will enable additional repetitions in this movement. Should a different movement be required, exit activity and re-enter from the activity carousel.

SPACE SHOOTER

- **Requirements:** Pronation and supination, Grip and release
- **Encourages:** Full range of movement with speed and control.
Also combined with grip and release

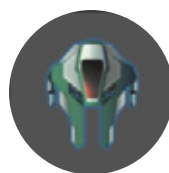
In this activity the user needs to move through pronation and supination to navigate left to right across the screen. The aim is to collect the coins in the spaceship as they fall from the sky while avoiding the bullets. Grip propels your spaceship up the screen and release to go down. This game requires high levels of concentration and co-ordination of movement and grip.

Activity guidelines:

- The user has three lives per level
- Firing is always automatic
- After being hit, there is a short period during which the player cannot receive damage
- Picking up a coin always gives 500 points
- Time for each level is approximate as when the enemies stop appearing, the level will wait to see if there are any coins left to fall before ending
- There are three types of enemies:



15 points
The bullets will go towards the last recorded position of the user



10 points
Scatters red round bombs

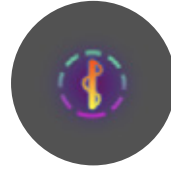


10 points
Bullets go directly downwards

- Each enemy can fire its associated bullet type with a certain probability – this increases in complexity as the Levels increase



Will set the firing to normal firing type



Will set the firing to laser type

	Coins/ No coins	Waves of enemies	Both firing types	Activity length
Level 1	Coins	0	No	30 sec
Level 2	Coins	7	No	35 sec
Level 3	Coins	8	No	40 sec
Level 4	Coins	11	No	45 sec
Level 5	No Coins	13	No	45 sec
Level 6	No Coins	13	No	55 sec
Level 7	Coins	12	No	60 sec
Level 8	Coins	19	Yes	65 sec
Level 9	No Coins	29	Yes	70 sec
Level 10	No Coins	31	Yes	75 sec

WINDOWSILL

- **Requirements:** pronation / supination with grip / release

This activity presents pots in different places on a windowsill. A bag of soil is then moved left to right (using pronation/supination) until it is placed directly above one of the pots. When still, the soil can be released to fill the pot by gripping. Once the pot is full, a seed can be placed into the pot using the same control. This is followed by a watering can which needs to be poured until the flower appears.

As the levels progress, more pots appear and at wider spacing. The pot colour and the flower colour match each other, which can be used for memory, prediction and other aspects of cognition..

Level 1	One blue pot central
Level 2	One blue pot towards right
Level 3	One blue pot towards left
Level 4	One yellow pot central
Level 5	Two blue pots, one left and one slightly right
Level 6	Two yellow pots and one blue from central to right
Level 7	One blue and one red pot slightly left
Level 8	One yellow pot towards left and one blue and one red on right
Level 9	Two red pots on left and just past central right plus one yellow and one blue on right
Level 10	Seven red pots spaced across windowsill – more on right

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