

## Protocol B: filling out the data collection sheet

### Option 1

Column name	Column contents
Cage #	The number assigned to the cage of animals you are observing.
Focal #	The number assigned to the individual focal animal you in the cage you are observing.
Start time	The time of day that you carry out your observations.
Elapsed time	The time given on the stopwatch when the animal stops the behaviour.
Behaviour	The behaviour the animal is performing (refer to your ethogram).
Behave notes	Any extra information that you might find useful or anything that seems unusual about the behaviour.
Behave duration	How long each behaviour lasted, worked out afterwards using the 'elapsed time' column.

Notes: 08/11/23						
AM observations, week 1, home cage (before playroom).						
Female Wistars, groups of 4.						
Observations recorded by EK and MP.						
Cage #	Focal #	Start time	Elapsed time	Behaviour	Behave notes	Behave duration
3	3	09:00	00:16.13	St		00:16.13
			00:18.13	Mo		00:02.00
			01:05.19	Sn		00:08.53
			01:14.12	Mo		00:09.35
			01:23.47	St		00:02.49
			01:26.36	Grp		00:05.30
			01:32.06	Pos	Sleep with	00:05.30
			10:00.00	Slp	Still sleeping...	08:27.54
2	1	09:30	05:06.32	Imo		05:06.32
			05:48.80	Mo		00:42.48
			06:00.36	G	Gnaw stick	00:11.16
			06:16.32	Mo		00:15.56
			07:06.75	Eat		00:50.43
			09:46.02	Imo		02:38.47
			10:00.00	Move		00:13.58

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Work in a pair if possible, with one person writing on the sheet and the other handling the stopwatch.

1. Note the behaviour the focal animal is performing in the 'behaviour' column.
2. When the animal stops this behaviour quickly stop the timer and record the displayed time in the 'elapsed time' column, next to the behaviour the animal just finished.
3. Quickly start the timer again and observe the new behaviour.
4. Once the animal moves onto another behaviour, stop the clock, record the time and quickly move on.
5. Repeat these steps until the stopwatch reaches 10:00.00.
6. Use the elapsed time to work out the duration of behaviours in the final column. Further instructions on how to do this are below.

You can convert the time to seconds (s) before inputting it onto a spreadsheet, but if you decide to input the times as they are shown on the stopwatch, then ensure the Excel cells are formatted correctly (right click → format cells → custom → mm:ss.0).

You can then use Excel to convert the times from stopwatch format (mm:ss:00) to seconds by using the formula shown in column D.

You may need to change the cell formatting from 'time' to 'general' or 'number' for Excel to correctly display the time in seconds (column C).

	A	B	C	D
1	<b>Behaviour</b>	<b>Duration (mm:ss.0)</b>	<b>Duration (s)</b>	<b>Conversion formula</b>
2	Abnormal	03:53.0	233	=MINUTE(D2)*60+SECOND(D2)
3	Eat	01:59.0	119	=MINUTE(D3)*60+SECOND(D3)
4	Gnaw	00:15.7	16	=MINUTE(D4)*60+SECOND(D4)
5	Groom	00:25.0	25	=MINUTE(D5)*60+SECOND(D5)
6	Immobile	07:46.9	467	=MINUTE(D6)*60+SECOND(D6)
7				

### How to work out the duration of the behaviours

The duration of behaviour column is best filled in after the behavioural observations are completed and you are inputting your data to a spreadsheet. Excel can easily do the calculations for you, examples of the formula to be used are shown in the formula column of this table (column E).

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	A	B	C	D	E
Column number	<b>Elapsed time</b> (mm:ss.00)	Behaviour	Behav. Notes	<b>Behav. duration</b> (mm:ss.00)	<b>Example Excel formula</b>
2	<b>00:16.13</b>	Stretch		<b>00:16.13</b>	<b>=A2</b>
3	<b>00:18.13</b>	Move		<b>00:02.00</b>	<b>=A3-A2</b>
4	<b>01:05.19</b>	Sniff		<b>00:47.06</b>	<b>=A4-A3</b>
5	<b>01:14.12</b>	Move		<b>00:08.53</b>	<b>=A5-A4</b>
6	<b>01:23.47</b>	Stretch		<b>00:09.35</b>	<b>=A6-A5</b>
7	<b>01:26.36</b>	Groom		<b>00:02.49</b>	<b>=A7-A6</b>
8	<b>01:32.06</b>	Pos. social	Sleep with	<b>00:05.30</b>	<b>=A8-A7</b>
9	<b>10:00.00</b>	Sleep	Still resting (alone).	<b>08:27.54</b>	<b>=A9-A8</b>

The duration of the very first behaviour of each observation session will always be equal to the first value in the elapsed time column (column D in the example), even if the animal was performing this behaviour before you began.

To work out the duration of each subsequent behaviour, take the value from the elapsed time column and subtract the elapsed time value noted for the behaviour that occurred directly before it.

The final behaviour recorded will always be deduced using your overall total elapsed time, which is 10 min in this example.

### Collating the data

Keep on top of data collection by collating data as you go along. After each observation note down the frequency and duration of each behaviour of interest.

Count how many times each behaviour of interest occurs in the 'behaviour' column. This will give you the number of times (frequency) that each behaviour occurred within the observation period.

Add up the time given in the 'behave duration' column for each behaviour of interest. This will give you the total amount of time spent on each behaviour during the observation period (duration).

As you complete more observations pool the data for each separate condition (before enrichment, after enrichment, during enrichment). This will give you a list of behaviours observed in each condition, how often these behaviours occurred on (frequency) and how long was spent performing these behaviours (duration).

\*Blind If a colleague will be involved in summarising the data, there is an opportunity to blind them to which data correspond to the 'before enrichment' and 'after enrichment' conditions.

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## Option 2

Column name	Column contents
Cage #	The number assigned to the cage of animals you are observing.
Focal #	The number assigned to the individual focal animal you in the cage you are observing.
Date/Time	The date and time that you carry out your observations.
Behaviour	The behaviour of interest, noted down when the animal begins performing this behaviour (refer to your ethogram).
Start	The time given on the stopwatch when the animal starts the behaviour.
Finish	The time given on the stopwatch when the animal stops the behaviour.
Behave notes	Any extra information that you might find useful or anything that seems unusual about the behaviour.
Behave duration	How long each behaviour lasted, worked out by deducting the start time from the finish time.

Work in a pair if possible, with one person writing on the sheet and the other handling the stopwatch.

1. Note the behaviour the focal animal is performing in the 'behaviour' column.
2. When the animal stops this behaviour quickly stop the timer and record the displayed time in the 'elapsed time' column, next to the behaviour the animal just finished.
3. Quickly start the timer again and observe the new behaviour.
4. Once the animal moves onto another behaviour, stop the clock, record the time and quickly move on.
5. Repeat these steps until the stopwatch reaches 10:00.00.
6. Use the Start and Finish times to work out the duration of the behaviours to fill in the final column (behave duration).

### Collating the data

Keep on top of data collection by collating data as you go along. After each observation note down the frequency and duration of each behaviour of interest.

Count how many times each behaviour of interest occurs in the 'behaviour' column. This will give you the number of times (frequency) that each behaviour occurred within the observation period.

Add up the time given in the 'behave duration' column for each behaviour of interest. This will give you the total amount of time spent on each behaviour during the observation period (duration).

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As you complete more observations pool the data for each separate condition (before enrichment, after enrichment, during enrichment). This will give you a list of behaviours observed in each condition, how often these behaviours occurred on (frequency) and how long was spent performing these behaviours (duration).

\*Blind If a colleague will be involved in summarising the data, there is an opportunity to blind them to which data correspond to the 'before enrichment' and 'after enrichment' conditions.

### Option 3

Column name	Column contents
Cage #	The number assigned to the cage of animals you are observing.
Focal #	The number assigned to the individual focal animal you in the cage you are observing.
Date/Time	The date and time that you carry out your observations.
Behaviour	The behaviour of interest (refer to your ethogram). These could be filled in beforehand or during the observation as it does not matter if or when they are performed. Each separate behaviour will only be written once, the number of occurrences of the behaviour will instead be indicated in the 'count' box.
Count (tally)	Tally marks indicating how many times each behaviour was performed during the observation period.
Total	The total tally marks for each behaviour/row
Notes	Any extra information that you might find useful or anything that seems unusual about the behaviour.

1. Record each occasion that the behaviours of interest are performed in the corresponding 'count' box, using a tally counting system. You may have added the behaviours to the data collection sheet before observations began, or you may choose to note them down if/when they occur.
2. Continue to tally the behaviours of interest until the stopwatch reaches 10:00.0.
3. Count the tally marks to complete the 'total' for each behaviour.

### Collating the data

The total counts for each behaviour will generate frequency data.

As you complete more observations pool the data for each separate condition (before enrichment, after enrichment, during enrichment). This will give you a list of behaviours observed in each condition, how often these behaviours occurred on (frequency).

\*Blind If a colleague will be involved in summarising the data, there is an opportunity to blind them to which data correspond to the 'before enrichment' and 'after enrichment' conditions.

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