

Resource sheet 6

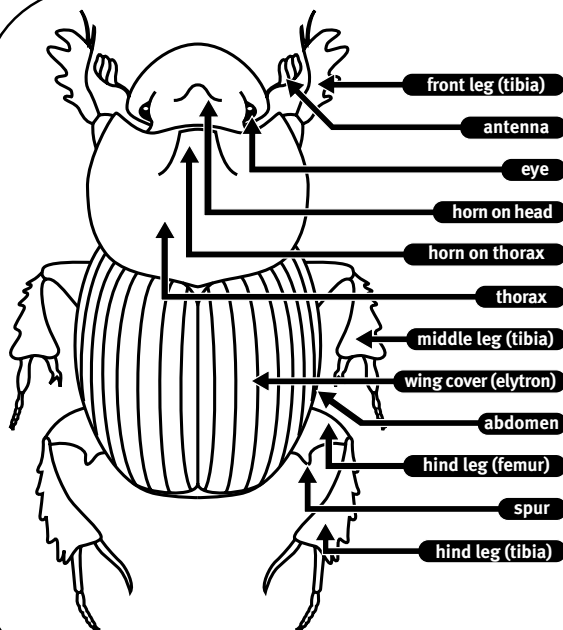
Agent Doug the dung beetle and his dungbusters!

Hi there, I am Agent Doug the dung beetle. Welcome to my team of dungbusting secret agents whose mission is to rid Queensland of dung! My team is working on the 'D' Files—a series of cases investigating ways in which to get rid of dung.



Secret weapons—The special features of the dung beetle which make 'dungbusting' possible

Refer to the diagram and list the characteristics of the dung beetle that would help with dungbusting. Identify why it would be an effective dung-fighting tool (e.g. feature: antennae; benefit: help to find dung or alert the agent to the presence of enemies).



Feature


.....

Benefit

.....

Agent Doug's 'D' Files—As part of your investigations complete iD cards for each 'secret agent'.

The Tunnellers




Name | *Onitis viridulus*


Code name | Agent Viri

Statistics |

Special skills or features |



Secret Agent 1




Name | *Onitis alexis*


Code name | Agent Alex

Statistics |

Special skills or features |



Secret Agent 2




Name | *Onthophagus gazella*


Code name | Agent Gaz

Statistics |

Special skills or features |



Secret Agent 3




Name | *Onthophagus sagittarius*

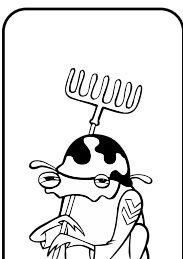
Code name | Agent Sagi

Statistics |

Special skills or features |



Secret Agent 4




Name | *Liatongus militaris*


Code name | Agent Mili

Statistics |

Special skills or features |



Secret Agent 5




Name | *Euoniticellus intermedius*

Code name | Agent Inter


Statistics |

Special skills or features |



Secret Agent 6

The Rollers




Name | *Sisyphus spinipes*


Code name | Agent Spines

Statistics |

Special skills or features |



Secret Agent 7




Name | *Sisyphus rubrus*

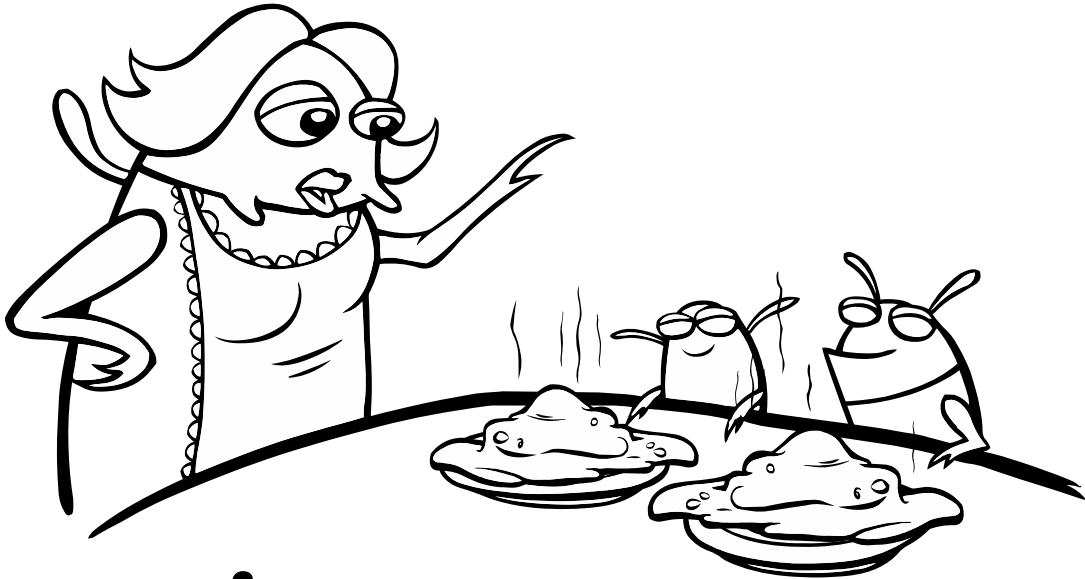
Code name | Agent Ruby

Statistics |

Special skills or features |



Secret Agent 8



One of the main (macro) nutrients in cattle dung is nitrogen (N), which is also one of the building blocks used to make proteins. The other two are potassium (K) and phosphorus (P). Micro-nutrients in dung include calcium, magnesium, sodium, iron, manganese and copper.

Dung beetles digest the bacteria from dung fluids and then use these nutrients to maintain their strength so that they are able to dig and fly.

If dung is left on the soil surface, some nitrogen is converted to ammonia and nitrogen gas and is lost into the atmosphere. When dung is rapidly buried below the surface much of the nitrogen is eventually turned into nitrates, which are absorbed by plant roots and used as building blocks for growth. Thus, the beetles help to minimise nitrogen loss and recycle it by returning it through the soil to the plants, along with all the other nutrients in buried dung.